American Aviation

SERVING THE INDUSTRY SINCE 1937

Extra C4

JAN. 21

1952

Chicago and Southern's R. H. Schwank

(See page 4)

American

American Aviation

NEWSLETTER

Volume 15 Number 34 January 21, 1952

Facilities to produce commercial airliners and other select transportation equipment have been included on a special DPA priority list for the granting of tax certificates authorizing amortization in five rather than 20 years.

Plants to build transports thus fall in the same priority category as machine tools, aviation gasoline, military items, aluminum, ferrous and nonferrous ores, pig iron, sulphur, nitrogen, aluminum extrusions and steel scrap. Additions to this old group include not only the small list of firms for transportation equipment but also ferro-alloys, electric power and 21 scarce chemicals.

In making the change, DPA declared plants to produce these 14 items would receive first call on issuance of certificates of necessity but indicated the 14 categories would have no relative ranking themselves.

•

Allotments of controlled materials for the transport and lightplane program for the second quarter of 1952 are enough to maintain present production levels. Although some cuts were made in DPA's allocations to the NPA Aircraft Division, no serious problems are expected.

Civil Aeronautics Administration's "take" of steel, copper and aluminum for the second three months should be enough to support all projects having a direct military value and about half the essential projects for civilian air transportation.

The Defense Department, of course, had first rights to the available supply of controlled materials and DPA reports the military received all the materials it needed to maintain aircraft and other military programs.

•

News of a major cutback in military plane production was to be given to representatives of 75 manufacturing firms in the airframe, engine and propeller fields last week at a Pentagon conference.

With few exceptions, the revisions in schedules will influence every plane builder to some degree. Fairchild, which had started tooling up a plant at Chicago for added C-119 production, has been told to close it and transfer output of added Packets to Hagerstown.

Other changes immediately set include a USAF decision that it definitely does not need the three planned sources of B-47 production (Boeing-Wichita, Douglas-Tulsa and Lockheed-Marietta). Boeing may end up the sole Stratojet producer with Lockheed second choice. But a curtailment of production at either Tulsa or Marietta will mean those plants will be used either for other production or as modification centers.

Two basic reasons are behind the Navy and USAF cutbacks. First involves urging by civilian mobilization officials (notably Aircraft Production Board chairman Harold R. Boyer) that military production schedules be made realistic. In other words, a slowdown of airframe output to make it coincide with deliveries of engines and other long lead time items.

Money problems are also apparent. Because of increased labor and material costs, last year's appropriations will not bring in as many planes as had been figured on when the budget was prepared. And this year's Navy and USAF estimates for fiscal 1953 have been cut by as much as $5 billion for the two services.

Long range goals in building up U. S. airpower remain the same. USAF is still aiming for 143 wings. But the completion date, formerly mid-1954, will be pushed back a year or more by the current cutbacks.

•

Priorities for a limited number of military aircraft components makers have been agreed on by DPA and the Munitions Board. After weeks of wrangling, DPA has agreed to let the Aircraft Production Resources Agency at Dayton handle both applications and allotments of controlled materials.

Plan means firms on the select list will get an A-1 aircraft priority in placing their orders for steel, copper and aluminum at the mills and consequently should have no difficulty in getting delivery. In effect, the agreement strips NPA's Aircraft Division (and the General Components Division) of much of their responsibility for they will no longer handle applications from these firms, who produce most aircraft components.

Still to be decided are the number of firms to be placed on the list. Several lists with between 20-50 companies on them are now in circulation "for comment."

•

USAF's strength has now reached 90 organized wings on the way toward its currently authorized goal of 95. Remaining wings will come into being slowly.

•

Fiscal 1953 defense budget, to be submitted by President Truman Jan. 21, reportedly sets aside a total of $12 billion for procurement of aircraft and related equipment.

USAF would receive a total of $21.5 billion in all, the Navy and Marines $13.2 billion, the Army $14.5 billion and the Defense Department $500 million, for a grand total of $49.7 billion, just under the $50 billion ceiling reportedly set by President Truman.

An additional $3.5 billion will probably be requested for military construction. Besides these amounts, Congress will be asked to appropriate for the atomic energy program, military aid for non-Communist nations and the stockpiling of strategic materials, all items tied in with defense.

•

A Supreme Court decision on a case involving two airlines and the California Public Utilities Commission means certificated air carriers will have to obtain PUC approval before putting fare increases into effect in that state even though they already have an okay from the CAB.

Background of the case is this: CAB permitted United Air Lines and Western Air Lines to hike their Los Angeles-San Francisco coach fares by $1.75 plus tax on March 1, 1951. Both lines put the increase into effect on that date without waiting for PUC approval, which came on May 9. The PUC then ordered the airlines to make refunds on the "overcharge" for tickets sold between the two dates. When the U. S. Supreme Court dismissed the case, it in effect upheld the PUC. The Court dismissed the appeal "for want of substantial Federal questions."

Both lines have already received a few requests which will now have to be paid. But the Civil Aeronautics Act prohibits refunds. A request for CAB permission to repay the $1.75 seems the only solution.

•

MANUFACTURING

Glenn L. Martin Co. stockholders will meet by March to approve the plan to issue $6 million in convertible debentures with voting rights to a group of private investors as well as additional common stock. Debentures will be convertible to common stock below the current market price and will have detachable warrants allowing their holders to subscribe for 100,000 shares of stock at the conversion price regardless of whether the debentures are redeemed.

Small contractor with only 40 employes, Pryor Manufacturing Co. of Mansfield, Ohio, produced its first B-47 wheel and brake assembly for B. F. Goodrich only six months after it received the subcontract. Machine tools were obtained from USAF storage.

Grumman Aircraft Engineering Corp. has received Navy permission to start construction of a $22 million assembly plant in Long Island's Wading River area. A runway for jet planes is included.

Forging plant at Erie, Pa., leased by Willys-Overland from the government last summer is now in full operation with a battery of 27 drop forge hammers ranging in capacity from 750 to 20,000 pounds.

Nine suits totalling $1,122,070 have been filed against Curtiss-Wright Corp. in San Francisco Federal District Court alleging C-W did not use "reasonable care" in making a propeller system used in the B-50 which crashed into a Seattle apartment house in August, killing 11.

Boeing, which had 75,000 on its payrolls during the war and 28,000 before Korea, now employs 53,000 at its Seattle and Wichita plants. Seattle work force has grown from 18,000 in mid-1950 to 28,000 while Wichita jumped from 10,000 then to 25,000 now.

Small Defense Plants Administration is planning to set up regional advisory boards in 13 cities, including Boston, New York, Philadelphia, Richmond, Atlanta, Cleveland, Chicago, Minneapolis, Kansas City, Dallas, Denver, San Francisco and Seattle.

To make sure the defense program does not get more than it actually needs in the way of controlled materials, DPA has created a "special temporary task force" headed by William L. Campbell, its deputy administrator for procurement and production.

•

PLANES AND EQUIPMENT

Flight simulator for the McDonnell F2H Banshee has been developed by Curtiss-Wright's Electronics Division. It is known as the 2F9.

Martin's XB-51 three jet bomber, which completed Phase I and II tests at Baltimore, has been flown to Edwards AFB for additional flight tests. Second XB-51 will be delivered soon.

Supersonic wind tunnel capable of reaching Mach 3 has been completed by Rensselaer Polytechnic Institute. Approximate cost was $75,000.

First flight of the North American XA2J-1 Navy attack bomber makes four turboprop planes flying in the U. S., all powered by Allison T-38 and T-40 engines. Included are the Navy's Convair XP5Y-1 and the Douglas A2D, as well as the Allison Turboliner. Pratt & Whitney's T-34 turboprop will probably not fly this year, although it is scheduled for the Douglas C-124 and Lockheed R70.

A scale capable of weighing nearly a million pounds at a time has been ordered from Fairbanks-Morse & Co. by Boeing. The $108,000 scale will be used in connection with the B-52 program.

Demonstrations of a new Lycoming-Spencer J-22B1 self-propelled generator for starting jet engines are now under way. A Lycoming O-290-G5 aircooled engine which powers the Jeep also powers a combination of AC and DC electric generators. Use of the Jeep as the starter eliminates the need for towing vehicles. The generating units are similar to trailer mounted C-22 Lycoming sets now in USAF service.

A Bell-designed, B. F. Goodrich-built electro-thermal de-icing system for helicopter rotor blades has been successfully tested by the Navy Bureau of Aeronautics. The system consists of fine electrical wires embedded in a neoprene boot running the length of the main rotor blades and covering a third of the chord.

(Continued Opposite Page 66)

SWEDLON Spells "SAFETY"

in the DOUGLAS-NAVY R6D

The SWEDLOW-developed plastic laminate with the impact strength to withstand the toughest kind of wear, contributes to the safety and usefulness of the huge new R6D Liftmaster which Douglas is now producing for the Navy in quantity.

With the Liftmaster, the Navy is now able to fly high priority cargo and personnel to any point on the globe in a pressurized transport at more than 300 miles per hour.

SWEDLON is used in the walls, ceilings and as cargo-liner in the Liftmaster. For other uses of this versatile material, including fuel-cell backing manufactured in accordance with applicable Air Force, Navy and customer specifications, consult our engineering staff.

**In addition to SWEDLON Laminates, we specialize in transparent glazing applications for the aircraft industry.*

Swedlow PLASTICS CO.

LOS ANGELES, CALIFORNIA • YOUNGSTOWN, OHIO

American Aviation

SERVING THE INDUSTRY SINCE 1937

1025 Vermont Avenue N.W., Washington 5, D. C
Telephone Sterling 5400
Cable - AMERAV

January 21, 1952 Volume 15 No. 34

Cover Photo

Chairman of the important purchasing committee of the Air Transport Association is R. H. Schwank, who joined Chicago and Southern Air Lines in 1941 as a clerk and who is now purchasing director of the company. The committee, composed of airline officials who are responsible for the buying of hundreds of thousands of dollars worth of equipment and materials each year, has been instrumental in improving purchasing methods, cutting inventories, etc. It has also played an important part in working up justifications for purchases of new commerical planes and parts under the defense program. Schwank, a native of La Harpe, Kansas, joined C&S after working in American Airlines' purchasing department from 1936 to 1941. He was employed by the U. S. government at Cairo, Ill., from 1934 to 1936.

other publications

American Aviation Daily (including **International Aviation**): Published daily except Saturdays, Sundays and holidays. Subscriptions: $18 one month; $200 one year. Daniel S. Wentz II, managing editor.

American Aviation Directory: Published twice a year, spring and fall. Single copy, $7.50. Marion E. Grambow, managing editor.

Official Airline Guide: Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, $9.00 one year, Canada, $9.50. All other countries, $11.00. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. Central 6-5804. C. N. Johnson, managing editor.

American Aviation Traffic News (incorporating **Air Tariff Reports**): Published daily except Saturdays, Sundays and holidays. Subscriptions: $150 a year. Preble Staver, managing editor.

American Aviation is published every Monday by American Aviation Publications Inc., Washington, D. C. Printed at the Telegraph Press, Harrisburg, Pa. Subscription rates for United States, Canada, Mexico, Central and South American countries—$5.00 for 1 year; $8.00 for 2 years; $10.00 for 3 years. All other countries—$7.00 for 1 year; $12.00 for 2 years. Entered as Second-Class matter in Washington, D. C., and Harrisburg, Pa.

Publishing Corporation: American Aviation Publications, Inc., Wayne W. Parrish, president; Albert H. Stackpole, Eric Bramley, vice presidents; E. J. Stackpole, Jr., secretary-treasurer; Leonard Eiserer, assistant secretary-treasurer.

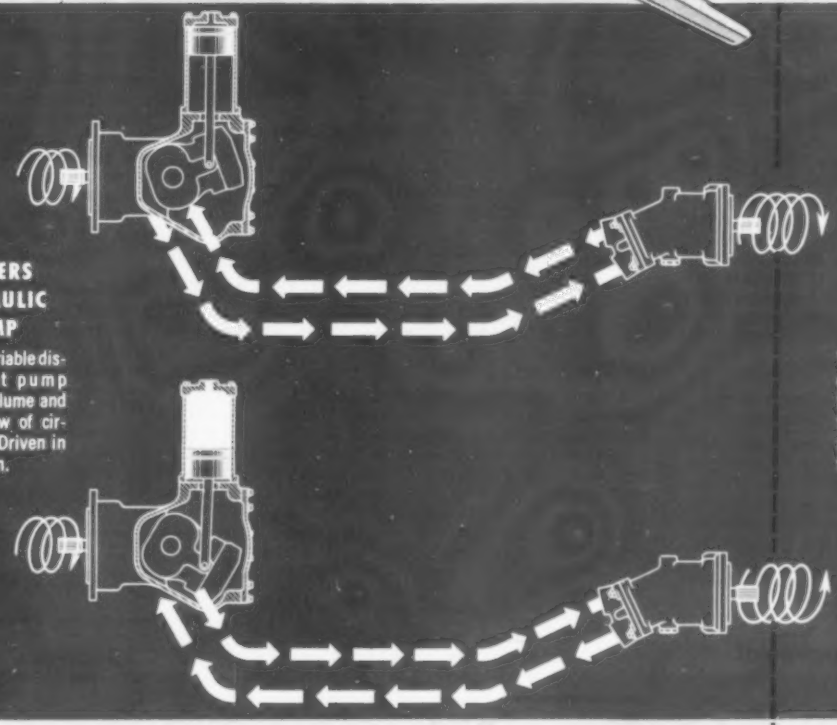
West Coast Office: Park Central Building 412 West Sixth St., Los Angeles 14, Calif. Trinity 7997. Fred S. Hunter, manager.

Chicago Office: 139 North Clark St., Chicago 2, Ill. Central 6-5804. Bruce L. McGregor, regional advertising manager.

Foreign Advertising Representative: United Kingdom—Pearl, Cooper Ltd., 2-3 Norfolk St., Strand, London, W. C. 2. Tel. Temple Bar 8111/2.

VICKERS hydraulic drives for aircraft

instantaneously reversible drive



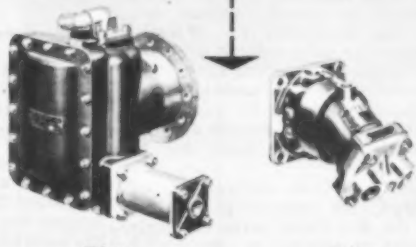
VICKERS HYDRAULIC PUMP

Two-way variable displacement pump regulates volume and reverses flow of circulating oil. Driven in one direction.

VICKERS HYDRAULIC MOTOR

Variable horsepower output (constant torque) characteristics from stall to maximum speed in both directions.

Vickers Hydraulic Drives for aircraft have very high horsepower/weight ratios. They are infinitely variable and reversible without gear changes or clutch mechanisms, may have either manual or automatic speed controls, and are so sensitive that they can be actuated by a few milliamps of signal current. Response is extremely rapid and precise due to low inertia of axial piston design of both pumps and motors. Motors deliver full torque over entire speed range. There is no radio interference. Vickers Hydraulic Drives have a variety of applications including cabin compressors, gun turrets, control surfaces, etc.



Vickers Variable Displacement Piston Type Pump

Vickers Constant Displacement Piston Type Motor

NEW
WRITE FOR NEW BULLETIN A-5200

VICKERS Incorporated
DIVISION OF THE SPERRY CORPORATION
1526 OAKMAN BLVD. • DETROIT 32, MICH.

4535

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

Clarification

To the Editor:

I have read with great interest the article on the Comet Operations as carried in the Dec. 10, 1951 issue of **American Aviation.** There is, however, one point on which I would appreciate some clarification.

In the article you state that "the Comet climbs to 31,000 feet in 38 minutes, during which time it burns about 8,000 imperial gallons of fuel." Also included in the article is the fuel supply of the Series 1 Comet as 6,000 imperial gallons. This figure compares to the figure of 6,050 gallons as put out by the United Kingdom Ministry of Civil Aviation.

The consumption of 8,000 gallons of fuel when the capacity is at 6,000 gallons would go a long way toward solving the jet fuel supply problem. Could it be that the article should have read 8,000 pounds?

CY GILLETTE
Supt. of Airports and Operations
Hawaii Aeronautics Commission

(The consumption figure was 8,000 pounds. The 6,000 imperial gallon fuel capacity was used both by BOAC and de Havilland in discussions with the writer. We note that standard reference books, such as "Jane's All the World's Aircraft—1951-52", do not list fuel capacity of the Comet.—Ed.)

Qualified Approval

To The Editor:

We wish to commend you for the recapitulation and comparison of pilot pay under recently negotiated contracts appearing on page 23 of your Nov. 26 issue. This is, however, a very difficult problem to analyze on one page as you have done and is always subject to factual error. For this reason, therefore, we would like to point out certain discrepancies appearing in your outline which could lead to misunderstanding.

Under the American Airlines agreement, base pay for captains is $200 per month for the first three years, at which time it begins to increase in amounts of $20 per month, progressing upward to $300 maximum during the eighth year. By the same token, copilot base pay which is $350 per month the first year of employment, is $200 the second year and remains at $200 the third year. It then progresses in $20 monthly increments to a maximum of $300 in the eighth year.

Chicago & Southern mileage pay is not the same as Capital as indicated in your outline but follows the TWA pattern of 1½c for each mile flown. Thus, Eastern's contract would not be the same as C&S as your outline indicates for mileage pay.

The United Air Lines contract is correctly outlined in your table with the exception of copilot base pay which is not the same as TWA base pay. United's copilot base pay is $350 the first year, $200 per month the second year and proceeds upward in increments of $16.67 to a maximum of $300 in the eighth year.

As you no doubt know, by this time the Air Line Pilots Association has completed the signing of eleven trunk line agreements, four of which follow the Eastern Air Lines pattern which incorporates an increasing rate for mileage pay as more miles are flown and seven of which follow the TWA pattern which calls for a flat mileage rate for all miles flown on present equipment.

This is in no sense a carping letter but merely an attempt to get the facts straight. This type of material has great educational value and reflects a lot of tedious research on the part of your staff.

R. L. OAKMAN
Research Director
Air Line Pilots Association

A Quick Grasp

To The Editor:

I have read with much interest and pleasure your article on Aer Lingus which appeared in your issue of Nov. 12. I must say that in your very short visit you certainly got hold of our problems and of the various methods we have employed to overcome them. I was particularly gratified by your reference to our maintenance and overhaul shops and by your high commendation of our flight operations.

J. F. DEMPSEY
General Manager
Aer Lingus (Irish Air Lines)

Books

AIR TRANSPORTATION MANAGEMENT, *by Joseph L. Nicholson, 446 pp. Published by John Wiley & Sons, Inc., New York. $6.50.*

Here is a painstaking appraisal of the practices and policies of the air transportation industry. It is obvious that the author has spent a great deal of time in preparation and has restrained himself to treat the industry in a most objective fashion.

While the book contributes little knowledge to those who are already in airline management, it is nonetheless a scholarly text for those who want background. The author does not penetrate very deeply into the day-to-day decisions which air transport management has to make, yet he has amassed a wealth of information and data. He avoids dealing with personalities, a hazardous undertaking for even one who is intimately connected with the industry, yet this cautious avoidance is in a sense a weakness because personalities have had much to do with the shaping of air transport history.

HELICOPTER ANALYSIS, *by Alexander A. Nikolsky. Published by John Wiley & Sons Inc., New York, and Chapman & Hall Ltd., London. 340 pages. $7.50.*

Prof. Nikolsky, of Princeton University's Department of Aeronautical Engineering, sums up helicopter theory, with emphasis on its application to the analysis of basic helicopter problems. Much of the material in chapters on dynamic stability and control represents the author's original analysis.

BAUGHMAN'S AVIATION DICTIONARY AND REFERENCE GUIDE, 3rd EDITION, *edited by Ernest J. Gentle and Charles Edward Chapel. Published by Aero Publishers Inc., Los Angeles, Calif. 656 pages. $7.50.*

This revised edition contains 2,000 new definitions on such topics as atomic energy, electronics, guided missiles, radar, rockets, helicopters and jet propulsion. The reference section has been revised and contains many pages of text material, photos, tables and charts on radar, illustrated nomenclature, weather, radio ranges, aircraft design, structural formulae, materials, specifications, etc.

ADVENTURES IN AVIATION EDUCATION, prepared by the American Council on Education in cooperation with the Civil Aeronautics Administration. 401 pages, illustrated. Available from American Council on Education, Washington, D. C., $3.50.

This is a research report for the use of teachers and school administrators. It is made up of reports by successful teachers of their experiences.

Wings of Yesterday

25 Years Ago

The Travelers Insurance Company of Hartford, Conn., announced that it would pay indemnity on its accident policies without the additional high premiums assessed in the past to cover air hazards. This affected 80% of the company's accident policy holders, covering any aviation accident while the insured was riding as a passenger in a licensed passenger plane or dirigible operated by a licensed pilot upon a regular passenger route between definitely established points.

•

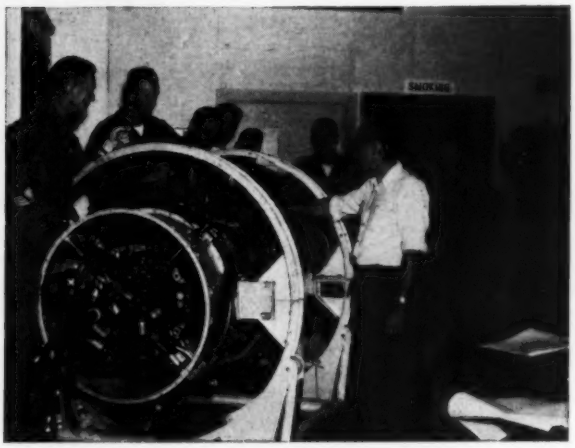
The Department of Commerce issued final draft of the regulations governing commercial aviation. The main provision of the regulations, which became effective December 31, 1926, was that which required the registration of all planes used in "air commerce" after planes had obtained airworthiness certificates.

IN THE NEWS

SERVICE

Getting top utilization from jet engines requires many techniques. Here are a few of the means used by General Electric to help the Air Force get maximum use from its J47 engines.

To provide immediate service for General Electric apparatus, more than 30 G-E Service Shops are placed strategically around the country. Four of these shops are currently handling aircraft gas turbine work; more can be adapted as required. Skilled technicians provide rapid and complete repair and overhaul facilities.



At an Air Force base, a G-E representative shows Air Force personnel some fine points of jet engine servicing. To back up this field training, formal G-E jet engine schools have been functioning since 1942. Courses are now presented in familiarization, overhaul, flight test engineering, and line maintenance.

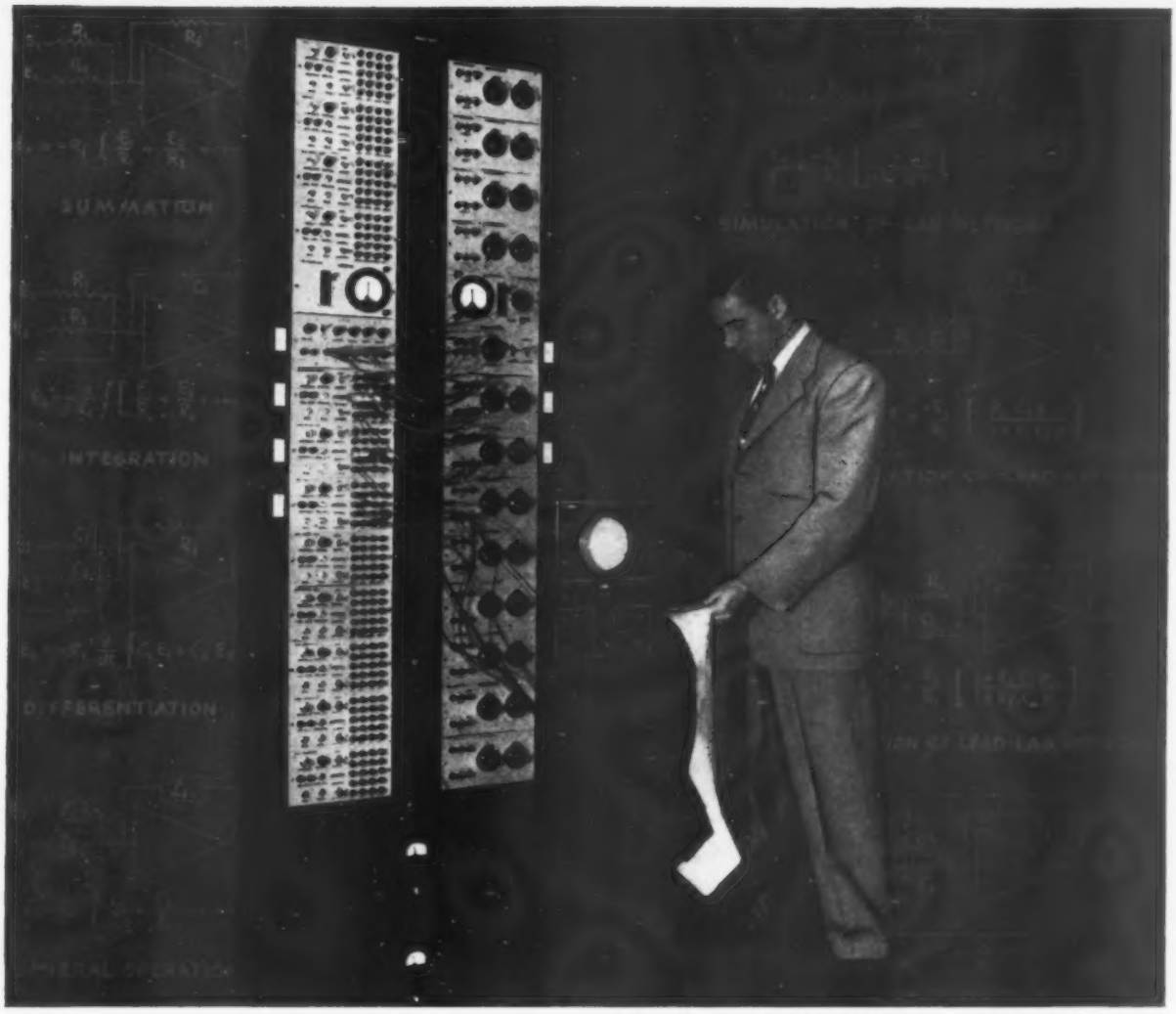
G-E service follows G-E equipment around the globe. Here, "tech reps" from General Electric and North American Aviation Inc. in Korea discuss combat performance of the G-E-powered, North American-built F-86 Sabre. G-E aviation field service representatives cover the vital spots in the world, are always available.

For quality products and dependable service, call on the company that pioneered the aircraft gas turbine industry. Telephone your General Electric aviation specialist or write General Electric Company, Schenectady 5, New York.

AIRCRAFT GAS TURBINES

GENERAL ELECTRIC

210-23



Solving a dynamics problem with the Boeing Computer; oscilloscope at right shows result

How to expand engineering brainpower

The Boeing Electronic Analog Computer doesn't replace engineers' brains. But it multiplies their effectiveness—enables them to explore a problem in all its variations at one time, without the long, laborious process of endless mathematical calculations.

Take a problem involving inertia, acceleration, velocity, displacement and time—whether in a fluid, a mechanical system, an electrical or thermal field or any other medium. To work out such a problem by complicated mathematical equations may take thousands of engineering man-hours. When the same data are fed into the electronic circuits of a Boeing Computer, accurate answers are given in a few hours!

Boeing engineers designed and built the computer as a piece of working equipment for use in guided missile development. In single or multiple units it has now become an important factor throughout the organization. It has opened the door to achievements which might otherwise have been impossible.

The computer meets a growing demand for an analog machine which can be economically and successfully operated by almost every industrial, military, research and educational group working on dynamics problems. Its simplicity, compactness, versatility and precision make it useful to engineers, improving the scope and quality of their work. An increasing number of concerns, not only in the aircraft industry but in other technical fields, are buying and using the Boeing Computer.

For information about the many practical uses of the Boeing Electronic Analog Computer and its price, write Sales Department, Boeing Airplane Company, Seattle 14, Washington

BOEING

When & Where

Jan. 28-Feb. 1—Institute of the Aeronautical Sciences, 20th Annual Meeting, Astor Hotel, New York.

Jan. 29-31—American Meteorological Society, National Meeting, Roosevelt Hotel, New York.

Feb. 5—Washington Chapter, Institute of the Aeronautical Sciences, sponsored by American Helicopter Society, Nat'l. Museum Auditorium, Washington, D. C.

Feb. 7-8—Instrument Society of America, New York Section, Power Plant Symposium, Statler Hotel, New York.

March 3-6—Institute of Radio Engineers, Waldorf-Astoria Hotel and Grand Central Palace, New York.

March 14—Institute of the Aeronautical Sciences, Seventh Annual Flight Propulsion Meeting, Cleveland, Ohio.

March 17-19—Second Mid-Western Conference on Fluid Mechanics, Ohio State University, Columbus, Ohio.

March 17-22—American Society of Tool Engineers, Chicago, Illinois.

March 20-22—Airport Operators Council, Annual Meeting, Hollywood-Roosevelt Hotel, Los Angeles, Calif.

March 30-Apr. 3—American Association of Airport Executives, Annual Convention, Fort Worth, Texas.

Apr. 21-24—Society of Automotive Engineers, Aeronautic, Aircraft Engineering Display & Technical Air Review, Statler Hotel, New York.

May 8-9—Fifth Annual Wisconsin Aeronautics Conference, Green Bay, Wisconsin.

May 15-16—American Helicopter Association, 8th Annual Forum, Washington Hotel, Washington, D. C.

May 22-24—American Society for Qaulity Control, Sixth Annual Convention.

June 1-6—Society of Automotive Engineers, Summer Meeting, Ambassador and Ritz Carlton Hotels, Atlantic City, N. J.

International

Jan. 22—IATA Technical Committee, Madrid, Spain.

Jan. 22—ICAO, PEL, Fourth Session, Montreal, Canada.

Feb. 22—ICAO, Third European-Mediterranean Meeting, Paris, France.

May 4—Aero Club of France, International Air Race.

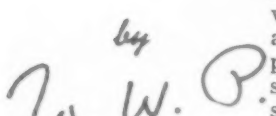
May 6—IATA Fifth Annual Technical Conference, Copenhagen, Denmark.

May 19—IATA Technical Committee. Thirteenth Meeting, Copenhagen, Denmark.

Editorial

Remedy Needed

ALL forms of transportation must forever suffer a certain amount of late arrivals and departures, and perhaps air transportation is more susceptible to annoying irregularities than others. An airplane has a great many things that can go wrong and a malfunctioning instrument at the last moment is one of the vagaries of the airline business.



But airline customers have come to accept delays which are peculiar to the airplane. Every last airline passenger will accept understandingly a delay involving safety.

The one justifiable bellyache which the airline passenger has today is the weak link between operations and passenger-handling in failure to keep passengers informed. The man or girl at the front counter or the telephone is the airline's link with its customer. But the people at the front counter are all too often far behind in their information about arrivals and departures.

The other day a friend of ours was assured up to within ten minutes of scheduled departure time that the plane would leave on time. Then came the announcement of a two and a half hour delay. If the delay had been caused by a last-minute discovery of malfunctioning, it would have been a case of hard luck. But our friend then checked with operations which told him blithely that they had known for several hours that the departure would be delayed at least two and a half hours. Somebody forgot to tell the man at the front counter.

The big task of the airlines for 1952 is to put their passenger relations in order. Inter-departmental communications is the weakest spot in air transportation today. This involves more than just the front-counter people, it involves the telephone service for people inquiring about arrivals and departures.

All the customer asks is the facts. He wants honest answers. If it's weather, or technical, or something else, he wants to know. He has a right to expect that the people he deals with know as of that moment what the true situation is with regard to arrivals and departures. The bulk of today's air traffic is the regular patron. He's adapted himself pretty well. He has begun to understand the flexibility and the whims of the airplane. He'll go along philosophically if the airline will deal out the facts.

When the back room has known for two hours that a plane will be three hours late, he expects the front counter or the telephone gal to know. It's a fair request.

Thanks, Mr. Gilpatric

LAST month on this page appeared an editorial captioned "Memo to Mr. Gilpatric." It was addressed to Under Secretary of the Air Force Roswell L. Gilpatric, and pointed out the critical spare-parts situation existing in the airlines, and how Mr. Gilpatric's office had become a crucial bottleneck in working out a solution. We pointed out that Mr. Gilpatric himself is an able man and had been most cooperative, but that his own policy had not been implemented down below.

The editorial got action—constructive action. Thanks to Mr. Gilpatric the major bottleneck has now been broken. A new and workable system of routing spare parts to the airlines during these days of defense build-up has been instituted. It will be some time before all of the annoying shortages are overcome, but Mr. Gilpatric has again demonstrated his ability as a competent citizen who grasps a problem rapidly and moves forward just as rapidly to get something done.

A Car on Hand

AIRLINE salesmen soliciting industrial accounts have heard time and time again that company salesmen or executives drive to their destinations so they'll have a car to use in making their calls.

Today airlines and the car-rental concerns have joined hands in what has turned out to be one of the most mutually-beneficial services any form of transportation has ever had to offer. We are glad to see the airlines starting to promote car-rental services, but there is still more to be done.

As one step in promoting the idea of a car waiting for a passenger on his arrival at an airport, the *Official Airline Guide*, one of our associate publications, is now showing a symbol of a car in the city index. It is now easy for airline staffs to advise customers of the availability of car-rental services throughout the country. The Hertz Driv-Ur-Self System and the National Car Rental System, Inc., have been particularly active in pioneering tie-ins with the airlines. The latter, in fact, lists its complete services in the *Guide*.

Arrangements for airline passengers have been simplified to an amazing degree. It is a worthwhile service to promote.

What Price Ratings?

EVERY January *Forbes* magazine evaluates the managements of leading companies in various major industries. This year it gave its appraisal of both airlines and aircraft manufacturers. It gave ratings to each company for management, public relations, labor relations, stockholders relations, and the like.

The *Forbes* ratings for aviation firms were anything but sensible, especially in the airline group. Many of the evaluations, which we won't specify here, were completely off base. All of which adds up, in our opinion, to the thesis that a business magazine such as *Forbes* has no justification for trying to rate management capabilities of individual companies without knowing what it's writing about. The whole appraisal of aviation firms revealed a vast lack of knowledge of the industry. Uninformed evaluations such as appeared in *Forbes* do the industry no good. Or *Forbes*, either.

WAYNE W. PARRISH

ESTABLISHED JUNE 1, 1937

American Aviation

VOLUME 15 NUMBER 34

First $1 Billion Year for U. S. Air Transport

1951 operating revenues of scheduled lines and 50 irregulars boosted 21% over previous year.

UNITED STATES commercial air transportation in 1951, including over 50 irregular carriers, joined the ranks of the billion dollar industries for the first time, with operating revenues of approximately $1,043,334,812.

Figures compiled by Dr. Lewis C. Sorrell, director of research for the Air Transport Association, included over 50 non-skeds, 16 domestic trunks, 10 U. S. international lines, 15 local service lines and four certificated cargo carriers. Not included were three territorial lines, Alaskan companies other than Pan American, and an unknown number of small non-skeds.

Statistics showed that:

Nearly 25,000,000 passengers piled up more than 14 billion passenger-miles, a 29% gain over 1950.

Passenger traffic accounted for about 80% of the total revenues, which were 21% over 1950.

Only mail showed a decline in revenues, although volume was up 26%. Decline was mainly attributable to heavy reductions in domestic mail pay. The 16 domestic trunks estimated their pay at $38,230,000 in 1951 against $46,311,000 in 1950, although volume jumped from 46 million ton-miles in 1950 to 63 million in 1951. For 1950, these trunks realized $1 per ton-mile revenue from mail; for 1951 the rate will probably be about 61c.

Non-skeds showed the biggest percentage increase in operating revenues and in revenue ton-miles, up 52.2% and 65%, respectively, over 1950. Their revenues were 5.2% of the industry total. Their figures, based on six- to nine-month reports, are incomplete and may involve large margins of error, and may also be under-estimates.

International lines showed the smallest percentage gains in revenues and ton-miles. In addition to non-skeds, the local lines and cargo carriers had big increases. Local service lines pushed their revenue ton-miles up 52.3% while their revenues increased 28%. Cargo carriers registered gains of 40% and 37.7%, respectively, in these categories.

Air express ton-mile receipts increased substantially, due to a jump in domestic express charges.

Ton-mile freight receipts gained at least 10% over 1950.

U. S. scheduled airlines collected more than $67 million in transportation taxes for the federal government. This figure will probably exceed substantially the net operating profits of the domestic carriers after payment of income taxes.

In contrast to the $67 million, recent reports have indicated that a number of non-skeds probably owe the government over $1 million in transportation taxes.

Revenues

	1950	1951	% Change
Passenger Revenues	$ 629,477,421	$ 801,579,823	plus 27.2%
Mail Revenues—U. S.	118,400,622	114,474,209	minus 3.3%
Cargo Revenues	74,335,946	91,310,544	plus 23.0%
Total	$ 858,596,708	$1,043,324,812	plus 21.4%

Traffic

	1950	1951	% Change
Revenue Passengers	19,083,517	24,415,609	plus 27.9%
Revenue Pass. Miles (000)	10,929,799	14,132,555	plus 29.6%
Mail Ton Miles	68,066,580	85,905,749	plus 26.2%
Cargo Ton Miles	318,870,093	389,385,850	plus 22.0%
Total	1,487,516,507	1,880,255,855	plus 26.4%

Revenue Ton-Miles

	1950	1951	% Change
Domestic Trunk Lines	963,257,032	1,206,808,257	plus 25.3%
Local Service Lines	20,267,842	30,868,380	plus 52.3%
International Carriers	319,576,173	356,761,218	plus 11.5%
Certificated Cargo Lines	71,415,460	100,000,000	plus 40.0%
Irregular Carriers	113,000,000	186,000,000	plus 65%
Total	1,487,516,507	1,880,255,855	plus 26.4%

Operating Revenues

	1950	1951	% Change
Domestic Trunk Lines	$ 524,108,612	$ 657,294,363	plus 25.4%
Local Service Lines	27,908,802	35,924,529	plus 28.0%
International Carriers	258,405,415	278,915,920	plus 7.9%
Certificated Cargo Lines	12,360,169	16,700,000	plus 37.7%
Irregular Carriers	35,813,710	54,500,000	plus 52.2%
Total	$ 858,596,708	$1,043,334,812	plus 21.4%

NOTE: Estimates are based on nine- and 10-month reports for trunk, local and international lines and incomplete reports for six to nine months for cargo carriers and non-skeds. Air express has been combined with air freight principally because apparent changes in the classification of cargo by certain international carriers renders a year-to-year comparison of freight and express rather meaningless.

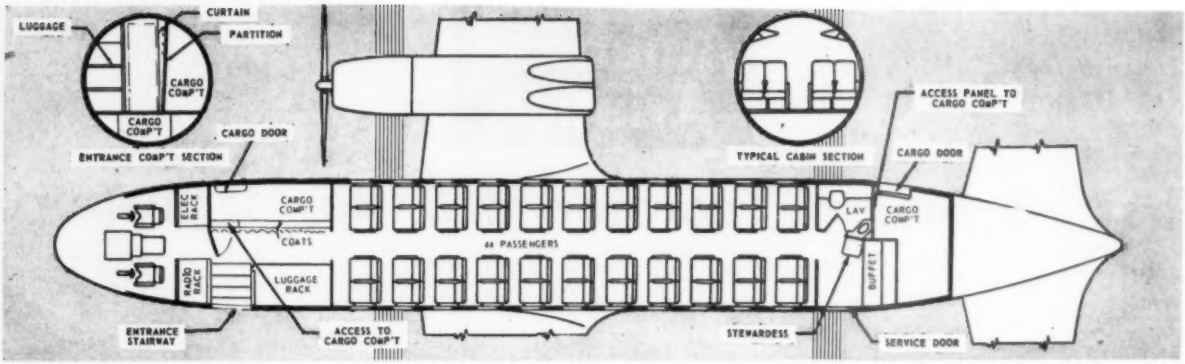
class seating, this allows for four more 40-inch seats, a total of 44.

The 340 also provides more cargo

be capable of flying at much higher speeds than will be possible in normal operation with the piston engines.

gives the plane improved performance for operation from smaller airports.

The larger wing also provides



SEATING PLAN and location of other compartments in 340 is shown above.

Convair Sets Sights High for Sales of 340

New details reveal possibility of air-coach version seating between 56 and 70

By Fred S. Hunter

NEWEST model in the Convair-Liner series, the 340, makes its bow on the airlines this year.

With the first production model already flying, Convair's schedule is for delivery of 67 planes in 1952, and it expects to make that schedule. The first five ships go to United Air Lines on its order of 40; Braniff Airways gets No. 6.

Consolidated Vultee Aircraft Corp., bidding vigorously for the top spot in the world's twin-engine transport market, expects the new Convair 340, with its improved range, payload, and performance, to out-shine the present Convair 240 in sales success by a substantial margin.

One reason for this optimism is the fact that Convair is confident that the plane will take its place in the expanding high-density air coach field. The company reveals that the airplane can carry:

- **56 passengers,** with the same 40-inch seat spacing as in a de luxe model.
- **70 passengers,** if the space between seats is reduced to 36½ inches, the arrangement currently used in some other high-density configurations.

150 Backlog

Convair sold 175 of its 240 model. Backlog on the Convair 340 already is approximately 150 planes, and deliveries go into the first quarter of 1954. The company's commercial sales division expects to see this backlog grow to the point where deliveries extend into 1956.

By that time the third model in the series, the Turbo-Liner, will be ready. A prototype equipped with Allison's 501 turbine engines is now being test-flown by the engine manufacturer. But the time when Convair can quote a price or schedule a delivery on a turbo-prop version of the airplane still is some distance away.

Convair has committed itself to the twin-engine transport field straight through because it envisions it as the biggest market. It expects to see the four-engine market recede, the twin-engine market accelerate. It won't surprise Convair if another manufacturer decidees to launch a twin-engine venture, unless military requirements prevent this.

Convair has set its sights high. Mark Miller, who heads up commercial sales and is a confirmed twin-engine man, foresees a sales potential of 2,000 Convairs of the piston-powered type.

With Capital Airlines and Northwest Airlines apparently the only remaining major domestic airline prospects for substantial twin-engine equipment orders the 2,000 figure looks as though it might be on the optimistic side. Probably Miller and his staff won't be too disappointed if they don't actually se'l that many before promotional emphasis is turned to the Turbo-Liner.

On the other hand, there are approximately 2,300 DC-3's in daily operation around the world today. With considerable logic, Miller points out that eventually all will have to be replaced, so why not now with Convairs?

On the basis of payload ability, it would take about 900 Convair 340's to replace 2,300 DC-3's. But there are other factors, such as schedule frequency. Chicago & Southern, for example, will have to replace its DC-3 equipment right across the board because of its scheduling.

Another point is that modern airplanes generate new traffic. This is no idle theory. A lot of people thought Robert F. Six, president of Continental Air Lines, was going overboard when he bought Convair 240's for the wide open spaces covered by his airline. Six's judgment was vindicated by the volume of new travel the Convairs brought to the carrier despite thin population densities.

The same thing has happened abroad, Australia and Ethiopia being notable examples because, so different in character, they illustrate the traffic-generating qualities of modern equipment under wholly unlike conditions.

Local Service Market

Temporary certificates, the availability of surplus C-47's, and other factors have, up to now, limited the local service, or feeder, carriers to DC-3 type equipment. But things are changing, and Convair, for the first time, is cocking an eye toward this market. The local service carriers have learned the economic importance of more seats, and almost all of them have upped their 21-passenger DC-3's to 24- or 28-passenger types. Convair has tagged Piedmont Airlines and Pioneer Air Lines as local-service carriers that already have advanced to the Convair 340 class.

The fuselage of the 340 has the same diameter as that of the 240 (9 feet 5 inches), but the new length of 79 feet 2 inches, an increase of 54 inches, makes it attractive for high-density coach configurations. A 38-inch cylindrical fuselage section is added aft of the wing, and a 16-inch section forward of the wing. In a configuration for first-

class seating, this allows for four more 40-inch seats, a total of 44.

The 340 also provides more cargo capacity, including a rear compartment having an area of 33.5 square feet and a volume of 199.2 cubic feet. A little shuffling of this compartment and removal of the buffet will enable Convair to go up to 56 seats for high-density seating, leaving the same 40-inch seat spacing as in a de luxe model.

If the seats are reduced to 36½ inches, which is the spacing currently used in some other high-density arrangements, Convair can put 70 seats in a Model 340.

Quick Conversion

The Convair 340 reflects Consolidated Vultee's strong belief in the value of turboprop application for commerical transports, being designed for quick conversion.

The airplane is designed for forward loads of 9 G's, as compared to 6 G's for the 240. For the maximum-range condition at equal weights and power settings, the 340 equipped with P&W CB series R-2800 engines will cruise approximately 8 mph faster than the 240, but structurally the craft will be capable of flying at much higher speeds than will be possible in normal operation with the piston engines.

Both the wing and fuselage, structurally, will allow for growth from the 45,000-pound maximum gross weight specified for the Model 340 with the present CB16 engines to approximately 53,000 pounds, allowing for conversion to higher power. A corollary of this greater structural strength is a maximum gross landing weight of 44,500 pounds, only 500 pounds less than the takeoff maximum gross, and a zero fuel weight of 43,000 pounds. These unusual weight ratios will have advantages on schedules where the distance is short but a fairly heavy fuel load has to be carried to qualify for alternates.

One of the important advancements of the new model is the 13% increase in wing area. The 920-square-foot wing, combined with an increase in the aspect ratio from 10 to 12 and improved flaps, increases the maximum CAR takeoff gross weight by approximately 3,600 pounds, and reduces the required CAA takeoff field length 1,500 feet at equal gross weights. The extra area, together with the improved wing flap system, gives the plane improved performance for operation from smaller airports.

The larger wing also provides faster climbs and operation at higher altitudes with increased cruising speeds at 16,000 and 20,000 feet at low cruise power.

More Fuel Capacity

An 850-gallon integral wing fuel tank is located outboard of each nacelle, giving the 340 a total of 1,700 gallons, or an increase of 700 gallons over the early 240's and approximately 200 gallons over those 240's having outer panel tanks.

Differential pressure of the new engine-driven cabin supercharger developed for the 340 by AiResearch Manufacturing Co. will be controlled to 4.16 psi, as compared to 3.75 in the Model 240. The fuselage structure is designed for an ultimate differential pressure of 8.9 psi.

Although the 340 has been engineered so that structurally the eventual advance from piston to turbine power can be pretty much a presto-chango conversion, it is more than likely that actually the fuselage will undergo another stretch. It can take another 60 or 70 inches without straining.

Convair-Liner 340 Specifications

Performance

Maximum Takeoff Weight	45,000 lbs.
Maximum Landing Weight	44,500 lbs.
Zero Fuel Weight	43,000 lbs.
Empty Weight	29,486 lbs.
Average cruising air speed at 18,000 feet (1200 bhp/eng.) demonstration weight at 43,000 lbs.	284 mph
Range against a 10 mph headwind with 1600 lbs. reserve, cruising operation with 1200 bhp/eng. at 18,000 feet, SFC—0.52 lb. bhp/hr (high blower), total payload 8,580 lbs. (44 passengers and baggage at 195 lbs. each), fuel 798 gals.	580 miles
Maximum CAR operating altitude with one engine inoperative, maximum continuous power, 43,000 lb, rate-of-climb—.023Vso2	9,900 ft.
Required CAR runway length for takeoff with 45,000 lbs. at sea level, 2400 bhp/eng.	4,020 ft.
Required CAR runway length for landing at destination at sea level at maximum landing weight of 44,500 lb.	4,250 ft.

Wing Group

Wing Area	920 sq. ft.
Span (overall)	105 ft., 8 in.
Root Chord	13 ft., 6 in.
Tip Chord	4 ft., 6 in.
Taper Ratio	3:1
Dihedral (wing sta 0 to 8.0)	4° 50′
Dihedral (wing sta 8 to tip)	6° 30′
Aspect Ratio	12
Mean Aerodynamic Chord (true)	9 ft. 6.3 in.

Body Group

Maximum fuselage diameter (inside skin)	9 ft. 5 in.
Length (overall)	79 ft. 2 in.
Height over tail (3 point position)	27 ft. 9 in.
Tread of main wheels	25 ft. 0 in.

Fuselage Volume

Compartments	Cu. Ft.	Sq. Ft.
Passenger	1816.7	283.4
Pilots	139.5	33.3
Fwd. Cargo (right side)	152.7	26.4
Aft Cargo	199.2	33.5
Cargo (under floor)	89.0	55.0
Luggage (left side)	84.7	13.6
Lavatory	80.0	13.4
Buffet	152.9	23.9
Coat room (fwd.)	29.2	2.3
Electrical substation	27.4	4.5
Radio rack	45.0	7.0

Engine Data

P & W R-2800-CB16 engines (two)
Fuel Grade: 100/130

	Horsepower Ratings Torquemeter Power/eng (bhp)	Critical Altitude (ft.)	Engine Speed (rpm)
Takeoff—wet	2400	4000	2800
Takeoff—dry	2050	6000	2700
Takeoff dry (alt.)	1950	8000	2800
Max. Continuous			
(low blower)	1800	8500	2600
(high blower)	1700	14500	2600

Propeller Data

Hamilton Standard hydramatic, automatic full-feathering and reversing.
Three dural blades, 13 ft., 1 in. diameter
Propeller Gear Ratio 0.450
Minimum Clearances

Propellers to ground	14.3 in.
Propellers to fuselage	17 in.

Specs for Two Versions of DC-7 Revealed

First performance figures given by Douglas for domestic, international models.

DOUGLAS Aircraft Co. has revealed specifications for two versions of the DC-7, one for domestic carriers and the other for long-range overseas operation.

The domestic transport, carrying 4,512 gallons of fuel, will have a gross takeoff weight of 116,800 pounds. Long-range models, carrying 6,600 gallons of fuel, sufficient for non-stop trans-Atlantic flights in either direction, will have maximum gross takeoff weights of 122,200 pounds.

E. F. Burton, chief engineer of the Douglas Santa Monica division, described the DC-7 as the "fastest and most powerful" transport ever designed by his company for commercial operation. Incorporating engineering refinements developed during the five years the DC-6 has been flying, it will have improvements providing greater passenger comfort and operating dependability, he added.

Powered by Wright R-3350 com-

Performance of the DC-7

	Gross Weights	
Level Flight Speed	**95,000 lbs.**	**105,000 lbs.**
With Maximum Continuous Power		
High blower critical altitude	410 mph	404 mph
at	22,200 ft.	22,100 ft.
With Maximum Cruising Power	370 mph	358 mph
High blower critical altitude		
at	24,500 ft.	24,200 ft.
Stalling Speed		
Landing configuration at sea level	99 mph	.....

Rate of Climb and Ceiling with Maximum Continuous Power	**95,000 lbs.**	**105,000 lbs.**	**116,800 lbs.**
4-engine max. R/C at sea level	1,810 fpm	1,535 fpm	1,260 fpm
4-engine max. R/C at 20,000 ft.	1,030 fpm	800 fpm	560 fpm
4-engine service ceiling	28,200 ft.	26,700 ft.	24,700 ft.
3-engine service ceiling	24,000 ft.	22,300 ft.	20,000 ft.

Takeoff	**95,000 lbs.**	**105,000 lbs.**	**116,800 lbs.**
CAA field length at sea level	3,400 ft.	4,400 ft.	5,870 ft.
CAA field length at 5,000 ft. altitude	4,350 ft.	5,750 ft.	..... *

Landing			
CAA field length at sea level	5,510 ft.	.....	.....
CAA field length at 5,000 ft. altitude	6,290 ft.	.....	.....

*Maximum permissible T/O weight with wing flap setting 20 degrees at 5,000 ft., with 3,250 bhp/engine is 112,700 lbs. The corresponding CAA T/O field length is 7,000 ft.

Range

Absolute range at 10,000 ft.		Absolute range at 20,000 ft.	
With 4,512 gallons of fuel	3,625	With 4,512 gallons of fuel	3,500
With 6,600 gallons of fuel	5,350	With 6,600 gallons of fuel	5,175

Note—Certain performance figures of the Wright R-3350 compound engine still are classified by the Navy.

pound engines developing 3,250 bhp each, the DC-7 will have a top speed in excess of 400 mph, and a normal cruising speed of more than 360 mph, or about 50 mph faster than the DC-6.

Eight feet longer than the DC-6's, the cabin of the DC-7 will accommodate from 60 to 95 passengers, depending upon the seating configuration. Cabin pressurization will provide sea-level atmosphere at a flight altitude of 12,500 feet, the equivalent of 5,000 feet at 20,000 feet altitude, and 8,000 feet at 25,000 feet.

Men primarily responsible for DC-7 developments to date, and now specifically assigned to the DC-7 project in supervisory spots include:

• **J. R. McGowen** of Douglas, appointed chief project engineer for both the DC-6 and DC-7. McGowen, formerly assistant project chief, has been with Douglas since 1939 and has been closely connected with the development of the DC-6 series aircraft since 1946.

• **M. G. Dan Beard** of American Airlines, chief engineer of AAL, and now project engineer on the DC-7 development within American. Beard has been instrumental in the developmental and operational improvements in the AAL Douglas fleet dating back to early flight testing of the DC-3 prior to delivery of the first production plane to American.

• **J. J. Dysart,** assistant chief project engineer, working with McGowen. Dysart joined Douglas in September, 1950, after leaving Pan American World Airways, where he was maintenance manager of the Latin-American Division.

While design details of the DC-7 continued to be formulated, American Airlines uncovered more of its plans for expanding coach-type services, services in which the DC-7 will play a prominent part. The present AAL schedule calling for two trans-continental coach operations per day, one via Dallas and the other via Chicago, will be expanded by another schedule in March, and a fourth in June. The new schedules will both be via Chicago. When DC-7's are introduced, in January, 1954, coach operations will be expanded transcontinentally and to other unspecified routes.

Specifications

Model

DC-7

Crew

3 Domestic } Plus cabin
5 Overseas } attendants

Capacity

80 Passengers, plus six lounge seats, in de luxe configuration. Up to 95 in coach version.
Cargo—733 cu. ft. and 13,980 lbs.
(Alternate) 1,171 cu. ft. and 19,730 lbs.

Dimension

Span	117' 6"
Length overall	108'11"
Height overall	28' 7"

Area (Sq. Ft.)

Wing (including aileron)	1463 sq. ft.

Landing Gear

Type—Fully retractable tricycle incorporating two sets of dual-type main wheels and a steerable-type nose wheel

Tread of main wheels	24'8"
Wheel Base (fore & aft)	36'2"

Power Plant

Make of engine—Wright R-3350 compound
Takeoff power—3250 bhp each
Propeller make—Hamilton Standard 4-bladed high activity

Diameter	13'6"

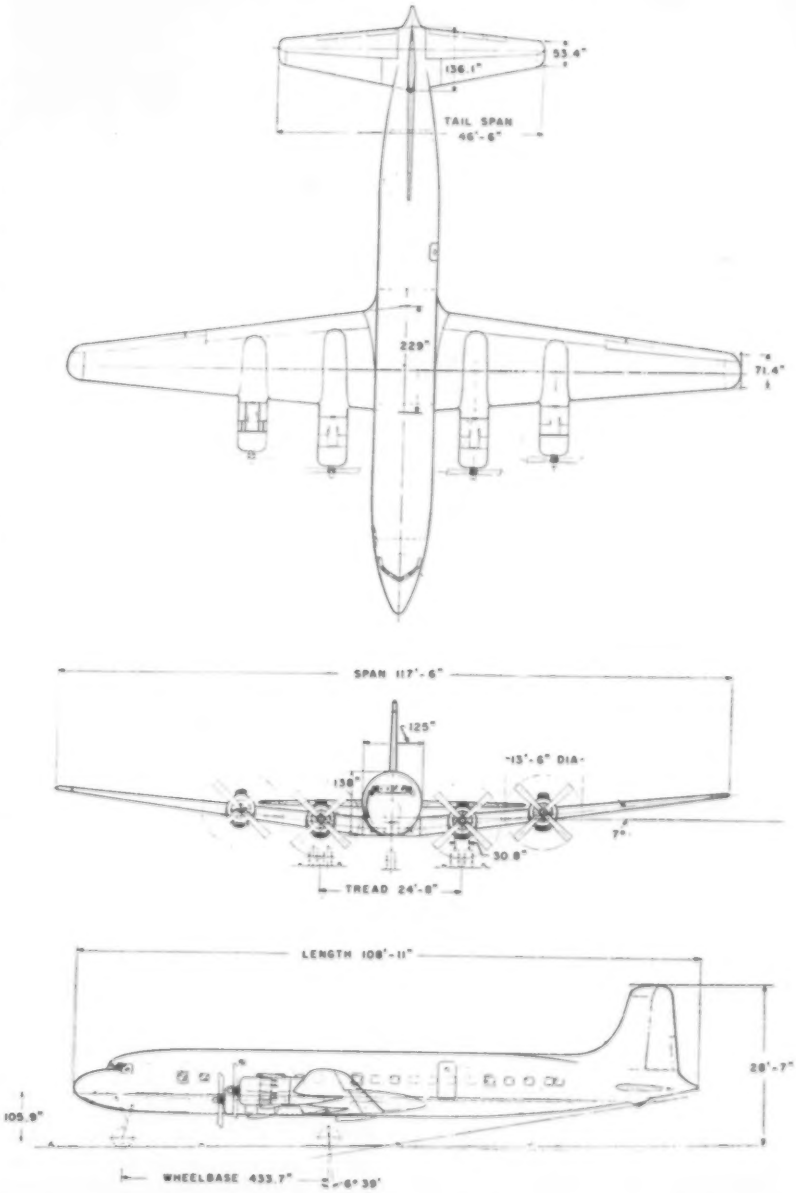
Weights

Maximum takeoff	
Domestic version	116,800 lbs.
Overseas version	122,200 lbs.
Structural design landing	95,000 lbs.
Zero fuel	88,250 lbs.
Payload	20,000 lbs.

C. G. Limits

Forward	8.0%
Aft	33.5%

DC–7 Three-View



PLASTIC BLOCKS mark aircraft "pips" on horizontal plotting radar scope, part of long-range radar system in use at Washington National Airport.

Radar-Controlled Departures Tested

First installation made at Washington National Airport for 90-day trial period.

By Richard Fuller

A PROGRAM of radar departure control from Washington National Airport, using techniques and equipment recommended by Special Working Group 5 of the Air Coordinating Committee, was inaugurated Jan. 7 for a 90-day operational test period. The move marks the first time civil and military aircraft have been jointly controlled on such a broad scale by a single controller.

Installation and testing of the new control center, on which work was begun after long discussions among Air Traffic Control, Air Line Pilots Association and representatives of the Air Transport Association, was under the general supervision of Bert Moore, CAA's chief of system requirements. Initial plans called for the radar equipment to control all traffic operating in the National Airport's terminal area. Present plans envision a trial run of the equipment as departure control only, with increased control dependent upon the success of this function.

Commenting on the new installation, Moore expressed confidence in the equipment and optimism as to its potentiality as complete terminal-area traffic-controlling equipment. The gear is now being used both for arriving and departing aircraft at Andrews Air Force Base across the Potomac River from Washington National.

Basic equipment used is long-range military radar (Microwave Early Warning), which has an operational range of 70 miles. The Navy contributed two VG-2 Skyatron units—king-size scopes on which incoming signals are magnified, so that each Skyatron gives a map-like picture of the terminal area, with features emphasized each time the scanner revolves.

4 Scopes

Grouped around the Skyatron are four conventional approach-radar scopes, each manned by an operator who is responsible for one of the four quadrants of the compass. Each operator tracks arriving and departing aircraft flying beyond the range of the forty-mile terminal area. As aircraft approach the area, they are seen to move from the long-range scopes onto the bigger, map-like, horizontal Skyatron. Here, the "pips" are marked with small numbered plastic blocks so that aircraft positions can be identified in case of power failure.

In the departure control for which the gear will initially be used, the aircraft is observed on the Skyatron as it taxis out to take-off position, moves down the runway, and becomes airborne. Instead of the usual long-range clearance, the ground controller issues a short clearance to a fix within the limits of the radar area. This clearance includes an altitude assignment and specific routing when necessary. Pilots use standard separation procedures after take off, unless advised otherwise, and standard radio aids.

Unobstructed View

Advantage of the new equipment is that, since the radar operator has before him an unobstructed "view" of all the aircraft operating in the terminal area, he can vector pilots taking off on special routings or shortcuts, something which is not possible under standard radio procedure.

Although radar separation is now the rule at Washington, standard IFR separation will be provided for any aircraft whenever this is requested by the pilot. Air Traffic Control advises that aircraft using standard departure procedures will not be penalized by loss of normal departure sequence.

Aircraft departing from the airport under radar separation change to a "Washington Terminal Control" frequency, through which the pilot communicates with the radar controller. The controller follows the flight on the Skyatron, vectoring when necessary, to speed up safe separation. When the aircraft is finally squared away in level flight, long clearance to destination is delivered.

3-Mile Separation

Under these procedures, a minimum of three miles separation from all other IFR traffic is guaranteed. But since both pilots and the CAA are concerned over possibility of collision with uncontrolled VFR traffic in borderline weather, additional service is offered by the new equipment to aircraft departing on IFR flight plans. Pilots who elect to use IFR departure procedure, will be advised by radar control of any potential targets and are given whatever heading changes are necessary to avoid them. These changes, however, are not mandatory. If the pilot of the IFR aircraft has forward visibility and does not wish to make the suggested changes, he may continue on his present course and so advise control.

VFR aircraft are warned of targets and no heading changes are suggested. But such planes in marginal weather may request a vector to avoid reported traffic and radar control will provide it.

The equipment is expected not only to expedite separation of departing aircraft but also to speed up the landing of arriving planes. Runways will be cleared faster. Airborne departing planes will be given more direct routes to their radio fixes outside the congested area,

thus utilizing unused airspace within the area.

Inherent fault is that the equipment gives no indication of an aircraft's altitude. Both arriving and departing aircraft have been unofficially monitored by the gear for some time. In one recent trial, an Air Force Douglas C-47 reported to the radar control center from a position just north of Richmond, Va. The plane was en route to Andrews Air Force Base, and the pilot reported that he had been instructed to proceed under radar control. His craft appeared as a small blip at almost the maximum range of the scope. Other targets appeared in his area at distances of a few miles, but when advised of their presence, the pilot answered that he did not have them in view, though the weather was relatively clear.

It was obvious that the aircraft seen on the scope were so much lower or higher than the monitored transport they could not be seen by the pilot. After being given two procedure turns, the Air Force transport was positively identified and given a heading to his destination. He was picked up by Andrews Precision Approach Radar on which he landed.

Improvements Coming

Across the river at Washington National, his landing was monitored on the Skyatron as his plane descended and touched down. Still, the signal received from the craft was not clear-cut on the scope, and doubt was expressed whether the equipment is precise enough to direct incoming aircraft in to the range of PAR. The principle upon which the long-range radar operates has been described, however, as basically sound. With improvements coming in Skyatrons, it is expected that the equipment can "grow" to be a fully satisfactory traffic-control device.

Installation of radar procedures at other points will not have to await final results of the Washington tests, although valuable information from them will be applicable to other locations. One factor which could lead to wider use is the fact that the equipment can be dovetailed with the function of the Air Force's Air Defense Command. The Air Force can "tap" the radar's long-range antenna and monitor the area covered for unidentified aircraft. Thus the gear can serve effectively as normal traffic control equipment and be quickly converted to an important military function in time of war.

Duff

Duff Given Management Authority Over Colonial

DONALD A. DUFF, 46, has been elected executive vice president and general manager of Colonial Airlines, Inc., New York. Until recently he was vice president in charge of traffic, sales and public relations of Frontier Airlines, Inc., Denver.

Alfons Landa, prominent Washington attorney who became president last year upon the resignation of Sig Janas, will remain as president for the time being.

Duff has been given full management authority to run Colonial. In a notice to employes Mr. Landa said, "Mr. Duff will function in all respects as president, and will refer to me such matters as in his discretion may require my attention."

Colonial is one of the 16 original trunk airlines but has been in considerable difficulty during the past eight months. The CAB brought many charges of irregularities against the company and the former management headed by Sig Janas. Recently Colonial and National effected a merger agreement.

Duff is a veteran in the airline business, having been with Pennsylvania-Central Airlines, predecessor to Capital; Northeast Airlines; and Continental. Later he became president of Challenger Airlines, local-service carrier which merged subsequently with Monarch Air Lines to form the present Frontier Airline system, with headquarters in Denver.

Steps Taken to Improve Lagging Air Taxi Plan

FAILURE of some airlines to support the National Air Taxi Conference, the off-line service capable of adding thousands of passenger miles per year to scheduled airline service, has caused real concern for the future of the air taxi organization.

Inquiry into the situation reveals that, while the affiliated airlines have been lax in instituting working educational programs among station managers and ticket agents, the fixed-base operators who are members of the Taxi Conference have also not measured up in doing the selling job required. But realistic steps are being taken both by the Air Taxi Conference and the Air Traffic Conference of America which reveal that the situation has been recognized and requires immediate action.

Here is what is being done:

• **Air Traffic Conference is working** on a new agreement between Air Taxi operators and the affiliated scheduled airlines, reworking the passenger liability requirements to encourage more airlines to take advantage of the service. Twenty-one scheduled airlines are now affiliated, but according to a spokesman close to the situation, the insurance liability rearrangement now in the mill opens the way for the affiliation of all the scheduled airlines.

• **A letter from M. F. Redfern,** vice president of the Air Transport Association and executive secretary of the Air Traffic Conference, has been sent to all the affiliated airlines, urging that station managers and concerned personnel be further advised of the potentiality of the air taxi organization. A similar letter by Evelyn V. Waters, secretary of the Air Taxi Conference, is due for early mailing to impress upon taxi operators the necessity for promotional campaigns on their part.

Meanwhile, a broadening program of service offered by the taxi operators is going ahead, under the direction of Robert S. Northington, NATC president. Currently being pushed are:

• **An arrangement with the Military Traffic Service** to obtain government approval of air taxi service on military transportation requests. Air transport for military personnel is sometimes not approved if the passenger is traveling to an off-line destination.

• **A zone-rate system,** being worked out among the operators, to standardize taxi rates, removing rate differentials which have made airline ticket agents' jobs more difficult in computing rates.

Are Airlines High-Hatting College Grads?

Transportation professor presents the problem, personnel managers give the answers.

Here's the Problem

GILBERT L. GIFFORD, associate professor of transportation at the University of Tennessee, Knoxville, is disturbed. His university is developing an extensive program in transportation training which is being widely accepted by the transportation industry. Professor Gifford says many motor carriers and railroad representatives are already beginning to interview spring and summer 1952 graduates.

Gifford

But—and here is the problem—the air transport industry doesn't seem to be much interested. In a letter to AMERICAN AVIATION, Professor Gifford says "we have quite a few majors in the field of air transportation and they are beginning to wonder why no job offers are coming from this industry."

What's the trouble? AMERICAN AVIATION wrote to eight of the leading airline personnel directors and their replies make for good reading and a great deal of thoughtful reflection. Do college graduates aim too high at the start? Do they expect too much right away? Are the job offers in the airlines of lower caliber than those in the motor carriers and railroad industry? Or do airlines have plenty of applicants without seeking them in colleges and universities?

Here Are the Answers

Linus C. Glotzbach, vice president, Northwest Airlines, Inc., St. Paul, Minn.:

The reason why majors in air transportation and airport management receive comparatively few job offers from the aviation industry is probably twofold: first, many of the positions in the industry demand little or no college training; and second, positions in the field of airport management are usually under the jurisdiction of some local governing agency rather than within the province of the scheduled carriers.

Glotzbach

Although a college degree is desirable as valuable preparation for future positions of leadership, the fact remains that in the airline industry such positions are relatively few. On the other hand, large numbers of people are needed as reservations agents, transportation agents, ticket agents, pilots, dispatchers, cabin attendants, mechanics, navigators, stock clerks, radio operators, etc. Most of these non-professional positions can be filled by personnel at a lower-than-college-graduate level.

Even though an individual hired for one of these positions is a college graduate, he must be given intensive training aimed specifically at preparing him for his job. Graduates do not always find it desirable or even possible to start at the bottom and gamble with the chance of working up through the ranks to a position fully commensurate with their educational background.

Since it is the general policy of the industry to promote from within, and, other things being equal, to give recognition to length of service, college graduates as well as others must accept the fact that it may be years before they reach their final goal. Colleges are a fine source of material if the people who come from them realize that they are not specialists or technicians merely by virtue of their college degrees and if they are willing to make a modest beginning and not become impatient for advancement.

College degrees are, of course, prerequisites for positions in professional fields such as legal, engineering, and accounting. The reason is obvious: the practices of such professions demand long and extensive education and training. It would not be possible to turn out qualified engineers and accountants in short, concentrated, within-company training periods.

It is not our intention to discount the long-range value of college training and college degrees in air transportation. To the individual who is willing to make a small beginning notwithstanding his educational accomplishments, it is an excellent foundation upon which to build a career. It must be recognized, however, that by and large, it is not mandatory. To insist upon that level of educational attainment for the performance of jobs which can be done equally well without that preparation would be impractical and unwise. The only result of such insistence would be job dissatisfaction and excessive turnover of personnel.

At the present time our company is in need of mechanics, navigators, equipment servicemen, stewardesses, flight service attendants, co-pilots, sales representatives and office personnel. We are always interested in hearing from qualified applicants and are glad to discuss the possibilities of employment with them.

•

W. T. Beebe, vice president-personnel of Chicago and Southern Air Lines, Inc., Memphis, Tenn.:

Our employment needs in this company are almost exclusively in the mechanical field and the agent-clerical field. It has been our experience that college graduates with majors in transportation have no interest whatever in either field. This appears to me to be a very serious mistake and I think part of the responsibility for their reluctance to start in these jobs must be laid in a great many cases to the universities and colleges. There is no better way of learning the business, nor is there a better avenue of progression than to start in as either a mechanic or a station or ticket agent.

Beebe

The college graduates with transpor-

tation majors are, almost to a man, not the least bit interested in starting in these categories and insist that they should be hired as assistants to department heads. College graduates with Bachelor of Arts degrees or Business degrees will frequently avail themselves of the openings in the agent field, and we have found these men to be excellent prospects for future advancement.

Both the colleges and the industry are the losers when the transportation majors insist on high sounding jobs. The industry loses the benefits of the specialized training of the transportation majors, and the transportation majors have a very hard time getting located, especially with the middle sized or smaller carriers.

We presently have openings for several agents at C&S so that the prospects for employment are good, but the applicants must be not only willing but anxious to start in on the ground floor and learn our operation and our business so that their combined academic and practical education can pay off in the future.

•

R. F. Ahrens, vice president-personnel, of United Air Lines, Chicago:

It has always been United's practice to attempt to promote from within our organization and by adhering to this policy whenever it has been possible to do so, the positions that can be filled from the outside are generally starting positions.

Ahrens

We employ a great many college graduates in public contact work, such as Telephone Sales and Passenger and Station Agents. The majority of this employment is done with schools that are adjacent to our line and are mainly as a result of general advertising. We employ college graduates in these starting positions who have received training in transportation while attending the university and, if they stay with us, their specialized education should stand them in good stead in measuring up for promotional opportunities.

In some cases where a special skill is needed, we find that we do not have people trained within our own organization to take advantage of some of the opportunities. In situations such as this we must look to the outside and college trained specialists have their greatest opportunity for employment.

Robert J. Wilson, vice president of Capital Airlines, Washington, D. C.:

With reference to the letter from Professor Gifford of the University of Tennessee, we are still very much interested in hiring college graduates, and particularly those who have majored in transportation; however, we find from past experience, for some reason, that these applicants are not interested in starting at the bottom.

Wilson

We have always done all possible to place students of high caliber wherever we can, and will continue to look to colleges for our source of material.

•

Thomas D. Toberty, personnel and industrial relations manager of Pan American World Airways, Atlantic Division, New York City:

Your letter comes at a particularly opportune time since its subject, airline personnel procurement, is keeping many of us awake nights. Let me try to answer your questions in their order.

Toberty

A. We do seek men who have majored in transportation. As an international airline we sometimes weigh other qualifications first, such as knowledge of foreign countries' customs, languages, and the possession of technical skills in airline operations. A transportation major is most helpful in many jobs in our company.

B. Colleges have been the primary source for securing sales, technical and administrative personnel. A great majority of our staff in these groups have come to us from college recruitment programs or solicitation of alumni placement offices.

C. Many jobs are in the "lower than college" grade but, again, college work either prior to or concurrent with, employment pays off in capacity to achieve promotion. From a beginning as a traffic counter representative to operations assistant, assistant station manager at a large terminal, then station manager at a small station is the usual sequence.

D. We have openings at present in the Atlantic Division for Sales Trainees, a job leading to Sales Representative jobs at overseas stations; for Operations Coordinating Clerks which lead to Aircraft Dispatcher vacancies; for Co-pilots; for Assistant Flight Engineers; for engineering specialties, especially Aeronautical; for Passenger Service duties, and for varieties of skilled and semi-skilled clerical personnel.

E. I suspect the most honest advice that could be given to a prospective employe in the aviation field whose college major is in transportation would be the trite old statement that "you can expect to get from your work in this field just what you're willing to put into it." It holds, in my judgment, little future promise to those who are only looking for a job. Its rewards for intelligent application should be limited only by the applicant's capacity to grow with the business.

On looking over these comments I see they sound like a commencement speaker, but to summarize, if there's a bright future in aviation it should be brighter for those with the educational capacity to earn it.

•

G. K. Griffin, vice president-personnel of American Airlines, Inc., New York City:

We have had many pleasant associations with Professor Gifford in the past and I sincerely believe that we will continue to employ transportation majors from his school.

We in American Airlines always seek the best qualified applicants to fill our vacancies and it goes without saying that those applicants who have furthered their education in our direction or who have specific experience in our business are given first consideration.

Griffin

During this past year many of our operations and sales agents positions have been filled by college graduates. While they are beginners now, it is our belief that many of them will be holding the managerial positions that are to come with the growth of our business.

We would like to employ about fifty college graduates right now, if they were available, but unfortunately we are between terms and will have to wait for the graduates of 1952. There is no doubt in my mind that transportation majors who are available from the University of Tennessee will have no difficulty in finding employment in the field of air transportation.

In answer to your question as to what advice I would give a transportation major concerning the prospects of entering the industry, I would say his chances are good but his future in the industry would depend upon his ability, personality and initiative. To prepare

himself for acceptance in air transportation, I would suggest he obtain as much factual knowledge as possible of the industry in general and specifically of the carriers with whom he desires to seek employment. He should make every effort to determine which phase of the air transportation business interests him the most and for which he is best suited, in order that he may present his qualifications in a precise and intelligent manner when making application with the airlines of his choice.

•

O. D. McKimmey, employment manager of Western Air Lines, Inc., Los Angeles:

It was with much interest that I read Professor Gifford's letter. My comment would be that Western Air Lines has not approached the University of Tennessee for applicants because, to date, we had not been advised of their Aviation Training Course. Probably this has been occasioned by the fact that the University of Tennessee is located some distance from our headquarters. No doubt an airline nearer the college would be in a much better position to work with them.

McKimmey

The University of Southern California, located here in Los Angeles, has what appears to be a similar training course and we have employed some of their graduates. Its aviation fraternity, Alpha Eta Rho, is quite helpful in the placement of graduates in airline positions, as they are in almost constant touch with us and other local airlines.

In regard to the problem of filling our vacancies, generally we are quite fortunate here in Los Angeles. It seems there is quite an influx of experienced airline personnel to this area and if interested in employment the individuals usually contact us, as our headquarters are located here. Should we have a vacancy, however, and no experienced applicant would be available, we would then be quite interested in a college graduate with an Aviation Major. It is generally true that most of the jobs available here in our company do not call for graduation from college as an education requirement. Generally speaking, two years college training is sufficient.

Right at this time we have very few vacancies in any classification and, in fact, only need two reservations agents here and three ticket agents in San Francisco.

I find it a little difficult to answer your question relative to what advice should be given a major in transportation about the prospects of entering air transportation. As you know, there is generally less hiring during the winter months here on the west coast than during the spring and summer. It would seem to me, however, that an otherwise well qualified graduate would not find it too difficult to enter the air transportation industry if he did not set his initial goal too high.

•

D. W. Harris, vice president-industrial relations, Trans World Airlines, Kansas City, Mo.:

TWA has not been able to absorb many of the college graduates who have majored in the general courses of air transportation for two reasons:

Harris

1. The company's excellent promotion program requires that all efforts to secure a suitable candidate from within TWA ranks will have been exhausted before one will be hired from outside the company. Since ticket agents and transportation agents are largely selected from among our own cargo agents; sales people from our own reservations agents; accountants from our junior accountants; and dispatchers from assistant dispatchers (having moved up the ranks); it is difficult to offer college graduates positions higher in the organization than those of reservations agent, cargo agent, junior aircraft maintenance dispatcher, junior accountant, hostess, stenographer, or clerk.

Exceptions are the professional positions (engineers, lawyers, doctors, or nurses), the specially skilled (mechanics, flight engineers, co-pilots, or radio operators), and an occasional, outstanding business school graduate.

2. Many college graduates, having completed a general curriculum in air transportation, do not accept TWA offers of employment in one of these lower job categories where, with ability and application, they might advance themselves in a career in airline transportation. Instead, with their general business backgrounds, they turn to the business openings which offer them a higher starting salary.

We are always interested in considering graduates who specialize in the air transportation field for the positions mentioned above. We have employed many such persons in the past and will continue to do so in the future in accordance with our needs.

No Practical Solution to Transport Plane Noise

FROM the technical standpoint, there is nothing of a practicable nature which can be done to curb the noise of transport aircraft, according to Dr. Hugh L. Dryden, director of the National Advisory Committee for Aeronautics.

Essentially, Dryden told AMERICAN AVIATION last week, aircraft noise can be lessened somewhat, but not without prohibitive penalties in weight and safety.

NACA has conducted tests on light aircraft with engine ratings up to 180 horsepower and had fairly good results in lowering the noise level. But, Dryden said, planes of the Douglas DC-3 type and larger present a problem of a "very different order of magnitude."

Dryden doubts that, with the acoustic knowledge currently available, any method of noise lessening acceptable to airline operators can be found.

Two-Phase Problem

Noise curbing is a two-phase problem, he pointed out, since both the engine exhaust and the propeller contribute to the airplane's roar. A muffler on the exhaust system of a 185-hp engine has produced good results, but Dryden doubted that the same results would be obtained in a transport plane engine. Further, it would create new problems, such as loss of engine power and increased fire hazard.

Even granting the possibility of efficient exhaust muffling, the propeller problem would still have to be met. Technically, this problem could be solved, but not practically. It would require development of larger, slower turning propellers, which in turn would involve development of new gearing for the engine to reduce the propeller tip speed. The larger propellers would probably also require redesign of the airplane wing, engine mounting and landing gear.

The advent of jet and turbo-prop engines to commercial service will not help the situation. Jet engines, as a matter of fact, will increase the problem, since they operate at a higher decibel level.

Manufacturers, for factory test work, have managed to kill jet noise by the use of the Maxim silencer principle, but these silencers involve very large construction. Dryden saw no hope of developing a Maxim silencer for aircraft. From the standpoint of the acoustic knowledge now at hand, he said, he sees no solution for the jet noise problem.

Martin Gets $32 Million in New Financing

Two airlines agree to pay more than contract price for planes as part of 5-phase deal.

IN a novel arrangement whereby a customer will help finance a manufacturer by paying more than the stipulated price for a product, Eastern Air Lines and Trans World Airlines will contribute more than $2,500,000 toward the refinancing of The Glenn L. Martin Co. by paying an additional $25,000 for each of the 101 Martin 4-0-4 twin-engined transports the two airlines have on order.

The airline agreement was one part of a five-phase program under which Martin will get $32,000,000 of new money to permit continuance of operations. The company had been wallowing in heavy financial seas, chiefly due to large losses on the 4-0-4 program.

The original price, when the two airlines negotiated their contracts, was $475,000 per plane. At this price Martin lost about $50,000 a plane. Thus, the airlines will be shouldering half the estimated loss. EAL has ordered 60 4-0-4's, TWA 41. Both airlines have options for additional planes, and the agreement also calls for an increase in the stated option prices.

The five-phase refinancing plan still has to be approved by the Martin stockholders. Briefly, it contemplates acquisition of new capital from private sources, the modification of the 4-0-4 contract prices, new V-loans, and additional government financing. Here are the details, in addition to the airline agreement:

• **1) The Navy will guarantee an additional $11,000,000** in V-loans, the actual money to be supplied by commercial banks. The names of the banks were not disclosed, but they will probably be the same as those which handled Martin's previous V-loans, namely the Mellon National Bank and Trust of Pittsburgh, the Chase National Bank of New York, and the Baltimore National Bank. The new loans will increase Martin's V-loan indebtedness to $27,500,000.

• **2) A $7,500,000 credit will be established** under Section 302 of the Defense Production Act of 1950, which authorizes special aid to companies participating in the defense program when it is not available elsewhere.

• **3) Reconstruction Finance Corp. will release a $4,500,000 claim** on the proceeds of the 12 2-0-2A transports now operated by TWA, which Martin will sell as they are turned back by TWA on delivery of the airline's 4-0-4 equipment. (TWA has been operating the 2-0-2A's on lease). Previously, this $4,500,000 was to have been applied against Martin's $14,500,000 RFC loan. The arrangement does not disturb the basic collateral for the RFC loan, which is secured by a first mortgage on the company's plant and facilities.

• **4) The remainder of the $32,000,000 will be supplied by new capital** from private interests. The names of the providers of the new capital were not disclosed, but they are understood to be a group of several interests, including Laurance S. Rockefeller, organized by Smith, Barney & Co. of New York, Martin's financial advisers. Rockefeller is a large EAL stockholder and also has interests in McDonnell Aircraft Corp., Piasecki Helicopter Corp., and Reaction Motors, Inc.

The five point program has the approval of all the government agencies concerned, including the Air Force and Navy, RFC, and the Office of Defense Mobilization. The Martin plant is under the cognizance of the Navy.

The outbreak of war in Korea contributed greatly to the financial difficulties from which Martin is about to disentangle itself. The heavy losses the company incurred, including the $5,000,000 loss on the 4-0-4 program, were due chiefly to the fact that the company was at low ebb in both backlog and employment at the start of the Korean war. With only a small force of experienced labor, Martin was forced to spread its competent labor too thinly over both defense contracts and the 4-0-4 project. This resulted in lowering productivity and increasing the man hours per pound of airframe cost.

Skyrocketing costs of labor and materials after contracts had been signed also contributed to the loss on the commercial work. In the first nine months of the current fiscal year, Martin wrote

Shake-Up in Martin Management?

THE management of The Glenn L. Martin Co. is slated for some major changes as a result of the company's refinancing plan. An official statement by the Navy said only that "additional" new management personnel would be brought into the company. This is interpreted by informed sources, however, as indicating that President and General Manager C. C. Pearson and Vice President and Assistant General Manager G. T. Willey will be replaced in these positions, although it is conceded that the company's financial troubles evolved largely from the impact of post-Korean expansion (see adjoining story) rather than from management failure.

This interpretation is confirmed by the fact that at least two well known figures in the aviation industry have already been offered the top job in Martin—former Undersecretary of Commerce for Transportation Delos W. Rentzel and former board chairman of Fairchild Engine & Airplane Corp., J. Carlton Ward. Both declined.

Board Chairman Glenn L. Martin is expected to retain an active position in the company.

Selection of new management will fall to the "new capital" interests, a group organized under the direction of Smith, Barney & Co., Martin's financial advisers. This new capital will come into the company through the purchase of about $6,000,000 worth of convertible debentures. The debenture issue will not be offered publicly, but will go directly to the group. In return, the group will get participation in a voting trust in collaboration with Glenn L. Martin, who has 26% of the outstanding stock. The voting trust will be responsible for what the Navy terms "revitalization of management" and "continuance of a management group satisfactory to defense agencies."

Although there is much speculation in industry circles, no definite new management selections had been made at press time. The selection will be no easy job. The new capital interests are known to be looking for one top man with wide management experience and several second-rung assistants. The top job will be hard to fill, since the man selected needs not only the highest qualifications, but also the blessing of the Air Force, Navy, RFC and the Office of Defense Mobilization. Most qualified executives would probably be unwilling to tackle the job for, despite the new credit extended, Martin will need considerable overhauling and the success of the refinancing program will be dependent upon the ability of the new management to get into the black immediately and stay there.

off a loss of $17,800,000. At the start of the fourth quarter, the company had a cash position of $6,600,000 against indebtedness of $26,000,000.

Now the company has a backlog of well over $400,000,000 in defense work, including production of B-57 Canberra light bombers and B-61 Matador guided missiles for the Air Force, P5M flying boats and Viking missiles for the Navy, and other classified projects. Martin's plant and facilities are appraised at $35,000,000 and are currently being expanded through new defense facility contracts totaling another $30,000,000. The company is also in a good position with regard to tax write-offs, with losses amounting to about $40,000,000 dating back to 1948 which can be applied against future earnings. In addition, the backlog is expected to be increased by another $250,000,000.

The Navy said the refinancing plan would be submitted to stockholders promptly, but a Martin spokesman had no information as to how promptly.

PAA, TWA Battle it Out for Atlantic Routes

Push opposing views at CAB hearing on renewal of certificates which expire in July.

By William V. Henzey

WITH the anticipated expansion of trans-Atlantic air travel looming as one of transportation's greatest traffic booms, the two U. S. flag carriers with potential access to that traffic, Pan American and TWA, are not in agreement as to how their routes should be set up to accommodate it.

As two weeks of public hearings on the question of renewal of temporary trans-Atlantic certificates closed last week, these questions remained for CAB and the President to solve:

• **Should present temporary trans-Atlantic certificates,** which expire July 4, 1952, be renewed on a permanent or further temporary basis?

• **Should Pan American's certificate be amended** to drop Paris and Rome as suggested by TWA?

• **Should TWA's certificate be amended** by extension to Tokyo to join with Northwest Airlines, thereby creating a round-the-world system in competition with Pan American, as suggested by TWA?

• **Should the certificates of both carriers be renewed** intact, or with Pan Am granted access on North Atlantic routes to Nice, Kuwait, Dakar and Casablanca, as suggested by Pan Am?

• **Or, does the route pattern of both lines** require extensive adjustments, not otherwise proposed, as a means of reducing what CAB feels have been heavy mail payments running over $20 million annually?

About the only points that sound speculation could be made on following the hearings were that temporary certificates would be renewed, and that the so-called "chosen instrument theory," under which one U.S. line would operate to foreign countries, is predominantly in the background, at least for the time being.

In an effort to squelch revival of the "chosen instrument" plan at a later date, and to permit longer-range planning, TWA concentrated much of its direct argument on the permanent-certificate issue. But with another eye on the anticipated hike in trans-Atlantic traffic, the carrier also pushed for route adjustments which it claims would provide a more even distribution of traffic potential to the two U.S. carriers.

Meanwhile, Pan American, long-associated with "chosen-instrument" talk, took the position that it has no opposition to renewal of TWA's certificate on either a permanent or temporary basis. Pan Am strongly opposed TWA's suggested route-pattern adjustments which would find Pan Am ousted from Paris and Rome, two points it was awarded by President Truman in the controversial PAA/AOA merger decision. In effect, Pan Am's argument was that the present route structures should be continued in their present form.

Damon Testifies

On the issue of permanent certificates, TWA's president Ralph S. Damon, first witness at the CAB hearings, indicated that TWA is at a "distinct disadvantage in the competitive trans-Atlantic market owing to the temporary nature of its certificate".

Damon asserted that recertification of TWA on a temporary basis would raise serious questions in the minds of TWA employes, banks it may have dealings with, and travel agents. Further, he said, it would aggravate the "blue chip" flight-equipment problem.

TWA's board chairman, Warren Lee Pierson, stressed the line's aims for route adjustments advocating a return to a "balanced area" competition. He maintained that the traffic-generating potential of the areas served should be such as to put both TWA and PAA on a "realistically competitive basis."

Stressing his line's proposal to remove Pan American from Paris and Rome, both of which are now served by PAA and TWA, Pierson maintained that London, Shannon, and Lisbon should be gateways served by both carriers, with Frankfurt, Karachi, and Calcutta certificated on both routes as "transfer points."

Illustrating the route-adjustment theory in more detail was TWA's traffic vice-president, E. O. Cocke, who estimated that TWA would have access to 118,000 passengers in 1953 if proposed route changes are made, and to 95,000 if the status quo is maintained.

Cocke forecast that the total trans-Atlantic air market would grow from 338,000 last year to a half-million in 1953, with much of the increase attributed to contemplated tourist operations which begin May, 1952.

Meanwhile, Pan American hit at TWA's route proposal as a "monopoly" move, since it envisions TWA remaining in Frankfurt and London, the two points it got in the PAA/AOA merger decision, while Pan Am would lose Paris and Rome.

Pan Am's chief policy witness, Harold R. Harris, Atlantic division vice-president, urged CAB to refrain from destroying the present route pattern because of "TWA's fear of competition".

In a strongly-worded statement, Harris said, "TWA, after a taste of competition, now wants Pan American thrown out of half of Europe and wants to return to the easy, lazy days when they had virtual monopoly of service to Paris and Rome. They call their plan 'area competition' but what they want is an area from which competition is excluded. We think people who have given so much lip service to the idea of competition should not be afraid to have some of it."

On statements such as these, and in voluminous exhibits, the two major lines created a record on which CAB and the President hope to reach a decision by July. Prior to final decision, parties will have an opportunity to file briefs and present oral arguments to the Board. Meanwhile, the expected increase in trans-Atlantic travel will have begun.

FIRST FLIGHT PHOTO of the Bristol 173 helicopter, a 12-15 passenger commercial design, shows the sleek lines of Britain's first twin-engine, twin-rotor design. The ten minute flight was "completely successful."

Foreign Planes in the News

FRENCH SIPA 200, powered by a Turbomeca Palas jet engine, is called the world's lightest jet-plane. Built by the Societe Industrielle pour l'Aeronautique, it grosses 1609 pounds and cruises at 236 mph with 280-435 miles range.

BRITAIN'S LARGEST cargo-type aircraft, the Blackburn Universal air freighter, has a main compartment floor 36 feet long and 10 feet wide.

SPECIALLY FITTED for flight tests of the SNECMA-built Atar jet engine, this Languedoc Aircraft is one of three flying test beds for various models of the promising French engine.

How Military Will Help Carriers With Spares

New plan has some drawbacks but is expected to ease parts shortage considerably.

By WILLIAM D. PERREAULT

THE U. S. Air Force and Navy have agreed to help the commercial airlines, scheduled and non-scheduled, keep their transports flying by providing emergency spare parts requirements from the armed services' own stocks, or by diverting current production to the airlines in certain instances. The new proposal will help, but airline officials feel:

- **It is unnecessarily "complex and time consuming."**
- **It does not cover complete engines,** a critically short item which military procurement has made virtually unobtainable.
- **It will automatically increase prices** at least 15% on all items obtained through these channels.
- **While basically simple, the volume of paper work** required per unit will add up to impressive grand totals.

Temporary Basis

The cooperative program, being handled through the Office of Aviation Defense Requirements of the Civil Aeronautics Administration, is "on a temporary basis to assist the airlines to obtain parts on a demonstrated-need basis in emergency," according to Under Secretary of Air Force R. L. Gilpatric, who added, however, "We are not in a position to provide a continuing-support supply system for the airlines."

The newly-announced program has been under development since Oct. 8, 1951. At this writing, the sales contract required as part of routine handling of airline parts requests was not available. The terms of the agreement include a tentative 60-days spread between requests and actual delivery of parts. This means some five months will have passed between the airline request for emergency help in the tightening parts program and initial results.

The primary method of supplying spare parts under the program will be by diversion of production line equipment to the airlines. This makes it mandatory that the airline's request to the USAF be preceded by regular purchasing formalities with the manufacturer or supplier.

When the approved airline request reaches Wright Field, USAF requirements permitting, the Air Force will order the manufacturer to sell the airline the required unit from military production. This means military delivery schedules will be delayed accordingly. The USAF notifies the airline, with a copy to CAA's OADR that action has been taken and indicates when delivery can be expected.

Military participation ends there. The manufacturer supplies the equipment on the purchase order previously issued by the airline and bills the airline directly.

In many cases it may not be possible to divert current production to satisfy airline needs. In such instances Wright Field may choose to supply the unit directly from existing USAF stocks, or, if the item is not available from the Air Force, the Navy may make it available with all formalities actually handled by the USAF.

In either case the USAF will sell the part directly to the airline, billing the airline for the actual or replacement cost of the unit, plus 15% for handling.

A third alternative provides that the USAF will supply the required units out of existing stock, with an express agreement that the airline will return the faulty unit to the services. In such instances the airline will be billed for the cost of overhauling the unit, plus 15% for handling charges.

3 Forms

The airline must fill out three separate forms in making application for USAF help in procuring spare parts. One of these, the sales contract, provides that misrepresentation regarding the emergency nature of the request is cause for that airline being permanently removed from the program.

The three forms requested are:

Air Carrier Application and Certification of Need—This form is used to establish the nature of the emergency, certify requirements, and outline the "reasonable efforts" which have been made to obtain the parts from other sources.

Air Force Sales Contract—Provides formal sales agreement and is signed by top airline executive, covering all of the types of purchases outlined above, including acceptance of overhaul costs when applicable; contain stipulation cutting the carrier off from further assistance if claims prove false.

Air Carrier Emergency Requests—Basically a parts list, detailing quantity, part number, name, and other technical and supply data on parts needed for 30-day period. More than one of these forms may be required.

Sixty days in advance of actual requirements, the air carriers will have to complete these forms and submit them to CAA's Office of Aviation Defense Requirements. That office, under the direction of F. R. Gaillard, will review the request, determine if it is reasonable and, if so, send it directly to Wright Field. To enforce CAA's position, each application for parts must be signed by the air carriers' local CAA agent, who should be familiar with the airline's needs.

Engines Sought

The new program has yet to be proved. On Dec. 28, a trial request was made to follow the plan's operation. It consisted of three requests, including one for six Pratt & Whitney R-4360 engines and another for one Douglas C-54 centersection. The P&W R-4360's are badly needed by Pan American if the Stratocruisers are to continue to operate at their present level of utilization. The centersection is sought by an unscheduled airline that has the makings of another airplane if a centersection can be obtained.

It has already been determined, as a result of these requests, that the military services have no intention of handling complete engine or propeller needs under this new program. These two major requests are still under consideration, but outside of the channels provided here. The airlines are still hopeful that some agreement that will provide engines to meet emergency needs will be accepted.

The USAF is not expected to be able to meet all the proved emergency requests. If the part required cannot be provided from military stocks, the airline is notified. It is then free to ask OADR to follow up by applying to the National Production Authority for a directive giving over-riding priority for the manufacture and delivery of these items.

Specifically, the new arrangement covers aircraft operated by air carriers holding a Certificate of Convenience and Necessity, having a maximum certificated take-off weight of 12,500 pounds or more, or used by a holder of an air carrier operating certificate issued under Part 42 of CAR, or by the holder of a commercial operator certificate issued under Part 45 of CAR.

"Start...with an Airwork Overhaul!"

Airplane operators *everywhere* send their engines and accessories to AIRWORK—It's the "Start" of a good operation! You are assured of factory approved techniques, modern tools and expert supervision of each operation resulting in extra hours of dependable performance.

From our Millville or Miami offices, you can receive prompt delivery of products from the following leading manufacturers—Bendix Products Division, Bendix Eclipse-Pioneer, Bendix Scintilla, American Brass, B. G., Champion, Continental, Jack and Heintz, Minnesota Mining and Mfg. Company, Packard Cable, Pratt and Whitney Aircraft, Pesco, Turco Products, Thompson Products, Titeflex, Romec, Co-Operative Industries and U. S. Rubber Company.

***"TRANS WORLD AIRLINES** has received hundreds of R-2000-9 and -2SD1G overhauled engines from AIRWORK during the past four years.*
The performance of these engines is consistent with the exacting requirements of a scheduled airline."

DISTRIBUTORS FOR PRATT & WHITNEY AIRCRAFT

Airwork CORPORATION
MILLVILLE, NEW JERSEY

NEW YORK • MIAMI • WASHINGTON

SAS Bonus Plan Cuts Maintenance Costs

Overhaul time, charges cut as incentive program boosts wages for mechanics, stock clerks.

By William D. Perreault

SCANDINAVIAN Airlines System's Olof E. Carlstein has guaranteed management that his organization will be able to handle maintenance of six additional Douglas DC-6B's, scheduled for early delivery, without additional manpower cost beyond that now required to maintain its fleet of 12 DC-6's. Few informed men would dare make the commitment made by Carlstein, vice president of engineering & maintenance with SAS's Region Sweden.

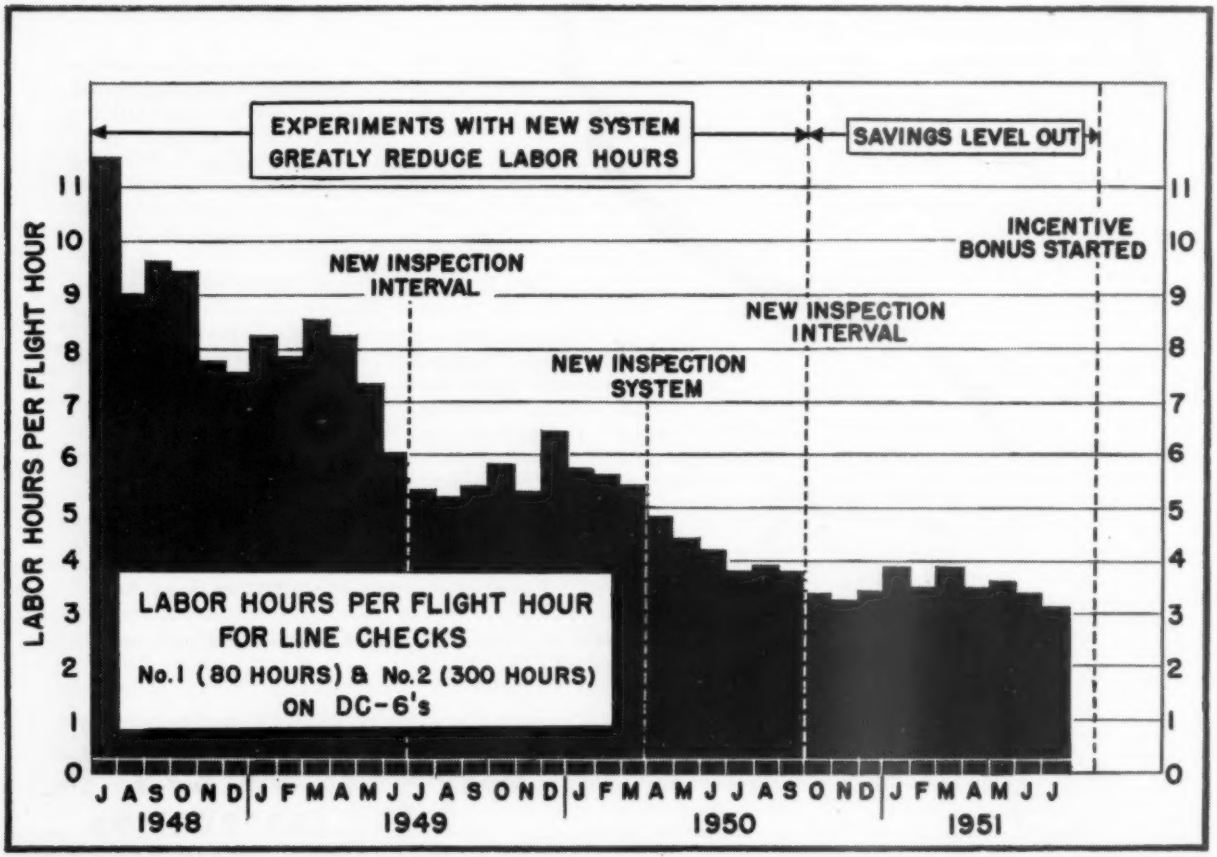
Basis of this challenging commitment is an incentive wage system now in operation at SAS's DC-6 maintenance and overhaul base in Stockholm, Sweden. This incentive or bonus wage system has raised the average wage of SAS mechanics by 30%, and sharply reduced the manhour requirements per hour of flight. It is not the first incentive system used by the airline industry. British European Airways started such a system about three years ago, but the SAS program appears to be a more refined system.

While the SAS system does not cover all maintenance activities, it does apply to most of the routine jobs in line maintenance, overhaul, the accessory overhaul shops, and even in the stock rooms. One of the most interesting applications of the system might be considered as that in the supply department, where stock clerks get paid a fixed bonus per item issued or received. This has virtually eliminated waiting lines at stock-issuing windows, a controversial matter in most airline operations.

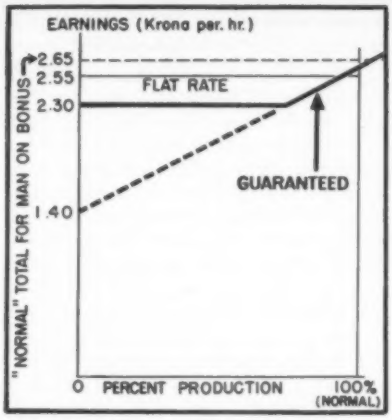
The fact that some jobs have not been converted to the incentive wage system means that SAS has two complete wage standards—one for fixed hourly-rate workers, the other for hourly workers eligible for the bonus. It might be added that there is constant pressure on the part of the mechanic's union to get more jobs placed in the bonus category. Reason for the delay is explained in detail below.

The Krona is the basic monetary unit in Sweden and is equivalent to 19.5c in American money. By direct comparison with U. S. income, the mechanic's wage, pegged at about 50c per hour on flat rates, appears low, but weighed in relationship to the cost of living and general industry wages it is comparable to U. S. standards.

Effect of the bonus system on production can best be visualized by



EFFECT OF IMPROVED PROCEDURES and changing inspection intervals is shown in this chart of SAS maintenance manhours per hour of flight. Only when new procedures and equipment no longer produce improvements in manpower requirements is the incentive system initiated for the job.



MATHEMATICAL RELATIONSHIPS of flat and bonus rates to production standards are shown in this SAS chart. Note that the projection is a straight line, and that the flat rate of 1.40 Krona determines returns to the company and worker.

reference to the manhour expenditure per engine overhaul before and after the system was introduced.

Manhour expenditure went from 350-375 hours per engine in 1949, prior to the start of this system, to 175 hours in July of 1951. This 50% reduction in manhours more than off-sets the increase in wages, which averages about 30% for all SAS activities in Sweden.

The most apparent objection to an incentive system is that the increased production is apt to relax quality standards and affect safety. This has not proved true. SAS feels, contrary to popular opinion, that this factor can be measured. The scale used is the number of rejects during inspection. Work rejected by the inspection department has declined since inception of the system. The impetus for better quality work is provided in a contract provisions which states:

> **"Each operation on bonus shall after completion pass inspection. If the work is rejected due to the worker's own fault he shall be obliged to complete the job without any extra time given."**

The workers' incentive to speed up production is thus intimately associated with his ability to maintain established standards.

Here's how the bonus system is applied financially:

A skilled worker has a basic pay rate of 2.55 Krona, plus .65 Krona cost-of-living allowance, a total of 3.20. The man on bonus gets a flat rate of 1.40 per hour actually worked, plus 1.25 per hour allotted for completion of the job, plus the cost of living allowance—a total of 3.30. Since the cost-of-living rate is constant with all workers and does not enter into bonus compution, it will be ignored in the following dis-

cussion, wages being 2.55 for flat hourly rates and 2.65 for bonus worker.

The higher basic wage has some significance. The bonus worker can take longer than the established time to do a particular project and still get credit for 100% production in the form of wages equal to the flat hourly wage. If his production is very low he may actually suffer a penalty. This is shown in the graph which establishes a guaranteed minimum wage of 2.30, 10% below that of the regular hourly worker. It will be seen that producing normally the bonus worker is assured higher hourly wages than the regular worker, but if he falls appreciably below the established normal production (about 10%, he can lose money, up to 10% of the hourly rate, at which level a floor has been set on wages.

Sample Case

Take the case of a worker assigned a job that has been set up as a four-hour assignment. He completes the job in two hours. His payment is made as follows:

2 hours work @ 1.40	2.80
4 hours allowed @ 1.25	5.00
Total pay for job	7.80

If the man required four hours to do the job established as a four-hour job payment would look like this:

4 hours work @ 1.40	5.60
4 hours allowed @ 1.25	5.00
Total pay for job	10.60

It appears that the slow worker gets more pay for the job. He does. But the faster worker, the one who in this instance does the job in two hours, can accomplish four such operations in one day: 4 x 7.80 equals 31.20 earnings.

The man taking the full four hours earns 10.60 Krona for the individual job, about three Krona more than the man completing the job in two hours, but can only perform two operations per day, and thus has a daily earning potential of only 22.10, nine Krona less than the fast worker.

Joint Plans

Virtually all the SAS bonus jobs are individually rated but in some instances, as in engine build-up, joint bonus programs exist, with each man sharing the earnings pro rata to the time spent on the job and his bonus wage. It might be noted that the size of bonus jobs runs from ½ hour to 45 hours per unit. In the accessory shops, where small jobs pass from one man to another, and the smaller time increments prevail, group bonuses are not used to cover items such as accessory overhaul.

Incentives can not be offered in the stock rooms until the workers in the shop are on the incentive system. The stock clerk is paid a flat wage plus bonus for each item received or dispensed. If the mechanics were not on the incentive system there would be some tendency to increase the number of visits to the stock windows, making several requisitions where one would do. When the mechanics are on the incentive wage system they are not willing to wait around for parts, nor make unnecessary trips.

In the stock rooms the system has given the workers incentive to learn their supply situation, pay more attention to part numbers, and generally improve the quality of service. When stock clerks have left the company the remaining clerks have been reluctant to add new help. This emphasizes the tendency to get the maximum production per man.

Preliminary Study

A bonus system introduced prematurely, introduced while machines and procedures are not the best, could result in complications. SAS first made a detailed study of methods and machines. The results of this study are shown graphically in the accompanying illustration showing manhours of maintenance per hour of flying as the systems were improved and time intervals modified. Only when this type improvement failed to show lower time elements was the bonus system introduced.

SAS's methods study, followed by time studies of individual jobs, took up to two years, the bulk of the time being spent on insuring efficient operations prior to introducing the bonus system. Once the bonus is in use, approved time on specific jobs can only be modified upward when new equipment or procedures are introduced, and then only with the approval of the union.

TAL Drops Domestic Non-Sked 2-0-2 Trips

Transocean Airlines has abandoned its irregular transcontinental passenger flights with Martin 2-0-2's because it couldn't compete with lower fares charged by other non-skeds and because of the expansion of scheduled coach service planned in the near future.

Station and sales personnel have been cut back, and stations at Salt Lake City and Denver have been closed. TAL had been charging $99 for New York to Los Angeles and San Francisco.

The three planes that were being used are now in Japan being flown on Japan Air Lines. They are owned by TAL, are under contract to Northwest Airlines, and are being flown by TAL crews. NWA is operating the Japanese airline under contract.

What Russia Tells its Airline Passengers

Translation of Aeroflot's timetable reveals some tough conditions covering air travel.

IF YOU are planning to travel on the routes of the Soviet Russian airline, Aeroflot, here are a few handy tips gleamed from Aeorflot's timetable of international routes.

You won't get any meals served in flight.

If you're a no-show you'll lose the whole price of the ticket.

If you have a round-trip ticket you have priority for a seat.

And Aeroflot recommends that you don't use alcoholic beverages or carbonated water before the flight.

AMERICAN AVIATION recently obtained a copy of the current Aeroflot timetable. But there isn't a single solitary word of English in it. So the timetable was sent to Charles L. Adams, once a member of AMERICAN AVIATION's editorial staff, who is studying the difficult Russian language at the University of Colorado. Mr. Adams' translation revealed some interesting sidelights of Russian air travel.

The international timetable is just 12 pages plus an artistic blue cover showing an Aeroflot airplane being loaded in front of a terminal. On the back side appears the slogan "Use Air Transportation" which indicates that even the Russian airline has to promote its services.

COVER OF Red's timetable

Sparse Schedules

There isn't a great deal of international service, judging from the timetable. There's a Moscow-Warsaw-Berlin flight five days weekly. Service from Moscow to Budapest is shown only two days a week and to Vienna only once weekly. Bucharest and Sofia are served from Moscow only twice a week, but there are additional flights for mail and freight. Prague does better with four flights weekly via Minsk and Warsaw.

Aeroflot advertises its once-weekly flight to Tirana, Albania, with a technical stop at Belgrade, Yugoslavia, with the comment that "exchange of loads is not made" at Belgrade. This is since Tito and Stalin ceased friendly relations.

There's a weekly flight from Moscow to Ulan-Bator in Mongolia with an overnight stop at Novosibirsk. There's a flight twice a month to Kabul in Afghanistan. And there is the better known service from Moscow to Helsinki, Finland, twice a week.

Night flying is simply not done by Aeroflot, at least on international services, but during the long summer days the airline takes advantage of the daylight hours which spread over a large part of the 24-hour day.

Instead of getting meals in flight, Aeroflot stops an average of an hour and twenty minutes at noon so you can eat on the ground.

If you live in Moscow, count on a lot of time to get to the airport. The timetable says the autobus takes 70 minutes.

Aeroflot has an agency in the Hotel Metropole in Moscow for the sale of tickets, making of reservations, and checking in for flights. But foreign citizens must go to the Bureau of Air Transportation of the Administration for Servicing the Diplomatic Corps (4 Stanislavski Street and if you're interested the telephone number is B 8-29-49.) Foreign citizens must also deal through Intourist, the official Soviet travel agency.

Aeroflot's timetable gives plenty of detailed information. Here is what it says in the section "For Information of Passengers Going Abroad":

"Don't postpone buying of tickets on airplane until the last day. Obtain the tickets in advance.

"When buying the ticket, pay in advance for the transportation of the baggage belonging to you.

"For getting information about international air communications, apply by telephone mentioned on page 8 or at the nearest city information bureau.

"The timetable of airplane and autobus movements may be changed. Therefore, it is recommended to check the time of autobus and airplane departures in advance.

"Check in advance as to whether all documents for international flights are in accordance with the passport, customs, and sanitary regulations of the respective countries.

"Arriving at the airport, present your passport and ticket at the ticket office for registration.

"After registration of the ticket, fill out the forms in the baggage office for transportation of your things; present your baggage to the customs. Passengers can not use their baggage during the flight; keep with you your small personal things necessary during the flight (hand luggage).

"Don't trouble yourself carrying your luggage—use the service of the porters.

"On the air station grounds, the porters serve passengers free of charge.

"Seating of passengers begins ten minutes before the departure of the airplane. Passengers are informed by loudspeaker when the seating is to begin.

"Passengers are permitted to go out on the landing fields to take their place in the airplane only if accompanied by an official of the air station.

Be Cautious

"On the airfield be cautious; in approaching the airplane keep away from the propellers, even if they are not rotating.

"Passengers with children are seated in the cabin first.

"It is not recommended to make a flight on an empty stomach. It is not recommended to use alcoholic drinks or carbonated water before the flight.

"When departing in cold weather, put on warm clothes. This will keep you from getting cold on your way to the airport and at the airfield when boarding the airplane.

"It is permissible to take off one's overcoat during the flight, because in the cabins of the heated passenger airplanes the temperature is kept at 17-18 degrees Centigrade. (62-65F).

"Passenger airplanes have comfortable chairs permitting one to sit for a long time without feeling tired. The chairs also can be half-reclined.

"If you want to use in flight the individual ventilation which is located over your chair, the tube of the ventilator must be moved out from the socket in order to direct the airflow on yourself.

"During take off and landing of the airplane, the passenger must quietly sit in his chair and at that time must not stand or move.

"When stopping at intermediate airfields it is not recommended to remain in the airplane. It is better to go out in the fresh air, take a walk and enter the air terminal.

"There are lunch counters and restaurants at the airports. The price of meals on the way is not included in the price of the ticket. It is recommended to have Soviet or foreign money for meals en route."

Under the section of rules and regulations, Aeroflot lays down some tough conditions. If Soviet authorities grab you at the last minute, you've had it—at least you've lost the price of the ticket. Here's the line-up:

"1. The ticket is valid only for the trip for which it is issued. Transfer of the ticket to another person is not permitted. The round-trip ticket is valid during two months from the date of issue and is subject to stamping.

"A passenger having a round-trip ticket has the first priority right for transportation.

"2. The passenger must come to the airport one hour before the takeoff, register his ticket, fill out forms for baggage and hand luggage, and pass through the passport control and customs inspection.

"In case of non-appearance of the passenger at the appointed time, the ticket loses its validity and its price is not refunded.

"3. If the passenger is not permitted to get on the flight or to continue the flight because of non-fulfillment by him of the passport and customs regulations, the ticket loses its validity and its price is not refunded.

"4. Children up to the age of 12 are transported only in the company of an adult passenger. For transportation of an infant up to two years old who doesn't require a separate seat, the charge is 10 percent of the full price; transportation of one child from 2 to 12 years old is made at 50 percent rebate without a separate seat; for two children transported at half-fare, one separate seat is given.

"5. On one passenger full-price ticket, or on a child's ticket with the rebate of 50 percent, free baggage up to 20 kilograms (44 lbs.) is permitted.

"On a child's ticket priced 10 percent of the full price, free baggage is not permitted.

"For excess weight of baggage above 20 kilograms (44 lbs.), charges are made."

There are a few other regulations, too. You can't transport explosives, poisons and inflammable items. Binouclars and cameras can be transported only if packed in baggage. Only very light hand luggage can be carried into the cabin—"only such small personal things as umbrella, cane, thermos bottle, etc. with total weight not exceeding 5 kilograms (11 lbs.)."

All of this, the timetable says, is according to and subject to the international convention of Oct. 12, 1929.

Anybody going to Omsk on next Thursday's flight?

Air Passenger-Miles Take Lead Over Pullman

Reports for first eight months of 1951 also show airlines getting bigger share of revenue.

AIR passenger-miles flown by the nation's certificated airlines exceeded Pullman passenger-miles in the first eight months of 1951, according to official traffic reports filed with the Civil Aeronautics Board and the Interstate Commerce Commission.

These reports show that the certificated trunk and local service airlines operated 7,020,438,000 revenue passenger-miles in the January-August period last year, compared with a Pullman passenger-mile volume of 6,967,636,000 in the same period.

The percent of air to Pullman traffic was 100.7%. For the like period of 1950, air volume totalled 5,221,902,000 passenger miles, or 87% of the 5,999,405,000 Pullman passenger-miles.

The airlines registered gains, too, in competition with combined coach and first-class rail traffic for the eight months period. ICC reports covering all the nation's Class 1 railroads show total traffic (commutation excluded) for the eight months amounted to 19,680,774,000 revenue passenger-miles, a gain of 12.4% over the 17,495,509,000 rail passenger-miles in the same period a year before.

The certificated airlines showed a gain of 34.4% in the comparable period, flying 7,020,438,000 revenue passenger-miles through August of last year, as against 5,221,902,000 through the same month of 1950. The percent of air to rail traffic increased from 29.7% in the first eight months of 1950 to 35.7% in the same period last year. Pullman traffic for the period was up 16.1%, or less than half as much as airline traffic.

Revenue-wise, the airlines also made an impressive showing. Their passenger revenues for the period totaled $391,012,234, which represented 72.3% of the $540,396,454 collected by the railroads from their passengers. Airline passenger revenues for the like period of 1950 amounted to $293,344,706, or 61.3% of rail passenger revenues.

The latter were up only 12.9% in the first eight months of 1951, while air passenger revenues were 33.2% higher than the year before. The railroads' share of combined air-rail passenger revenues for the eight months period was 58.1% and the airlines' share was 41.9%. Shares for the like period of 1950 were 62% and 38% respectively.

Air-Rail Comparison, January-August, 1951

		Rail Revenue Passenger-Miles (Thousands)	Air Revenue Pass.-Miles (Thousands)	% Air to Rail	Pullman Rev. Pass.-Miles (Thousands)	% Air to Pullman	Rail Passenger Revenues	Air Passenger Revenues	% Air to Rail
Jan.	1951	2,557,883	759,000	29.6	1,106,759	68.5	$70,769,266	$42,115,112	59.5
	1950	2,278,877	487,779	21.4	873,579	55.8	62,884,942	32,153,755	51.1
Feb.	1951	2,023,443	696,310	34.4	851,477	81.7	57,414,675	38,757,038	67.5
	1950	1,814,240	487,989	26.8	705,281	69.1	51,624,249	27,498,148	53.2
Mar.	1951	2,305,097	872,769	37.8	905,123	96.4	63,772,956	48,646,007	76.2
	1950	1,870,838	574,912	30.7	718,310	80.0	52,892,712	32,337,749	61.1
Apr.	1951	2,157,434	871,000	40.3	820,116	106.2	59,677,277	48,757,694	83.2
	1950	1,949,617	645,770	33.1	668,892	96.5	54,027,405	36,001,578	66.6
May	1951	2,237,568	897,287	40.1	774,033	115.9	63,807,868	50,348,495	78.8
	1950	1,782,226	693,302	38.9	582,838	118.9	49,932,468	38,407,310	76.9
June	1951	2,707,058	968,125	35.7	868,855	111.4	73,949,587	53,811,743	72.7
	1950	2,438,373	792,825	32.6	773,012	102.5	65,370,636	43,451,217	66.4
July	1951	2,787,379	955,260	34.2	801,933	119.1	73,621,636	52,929,290	71.8
	1950	2,636,569	754,942	28.6	785,472	96.1	69,624,902	41,071,998	58.9
Aug.	1951	2,902,437	1,000,687	35.6	829,638	120.6	77,153,590	55,646,850	72.1
	1950	2,729,593	784,383	28.7	892,023	87.9	71,729,186	42,422,951	59.1
Total	1951	19,680,774	7,020,438	35.7	6,967,636	100.7	540,396,454	391,012,234	72.3
	1950	17,495,509	5,221,902	29.7	5,999,405	87.0	478,351,888	293,344,706	61.3

for quality aviation instruments...

...specify Sperry

The entire fleets of DC-6B passenger transports in the Pan American and Panagra services will fly with Sperry instruments. These instruments complement one another, making it possible for the human pilot to uphold his line's reputation for safe, smooth, comfortable, enjoyable on-schedule flights in all weather and conditions of visibility.

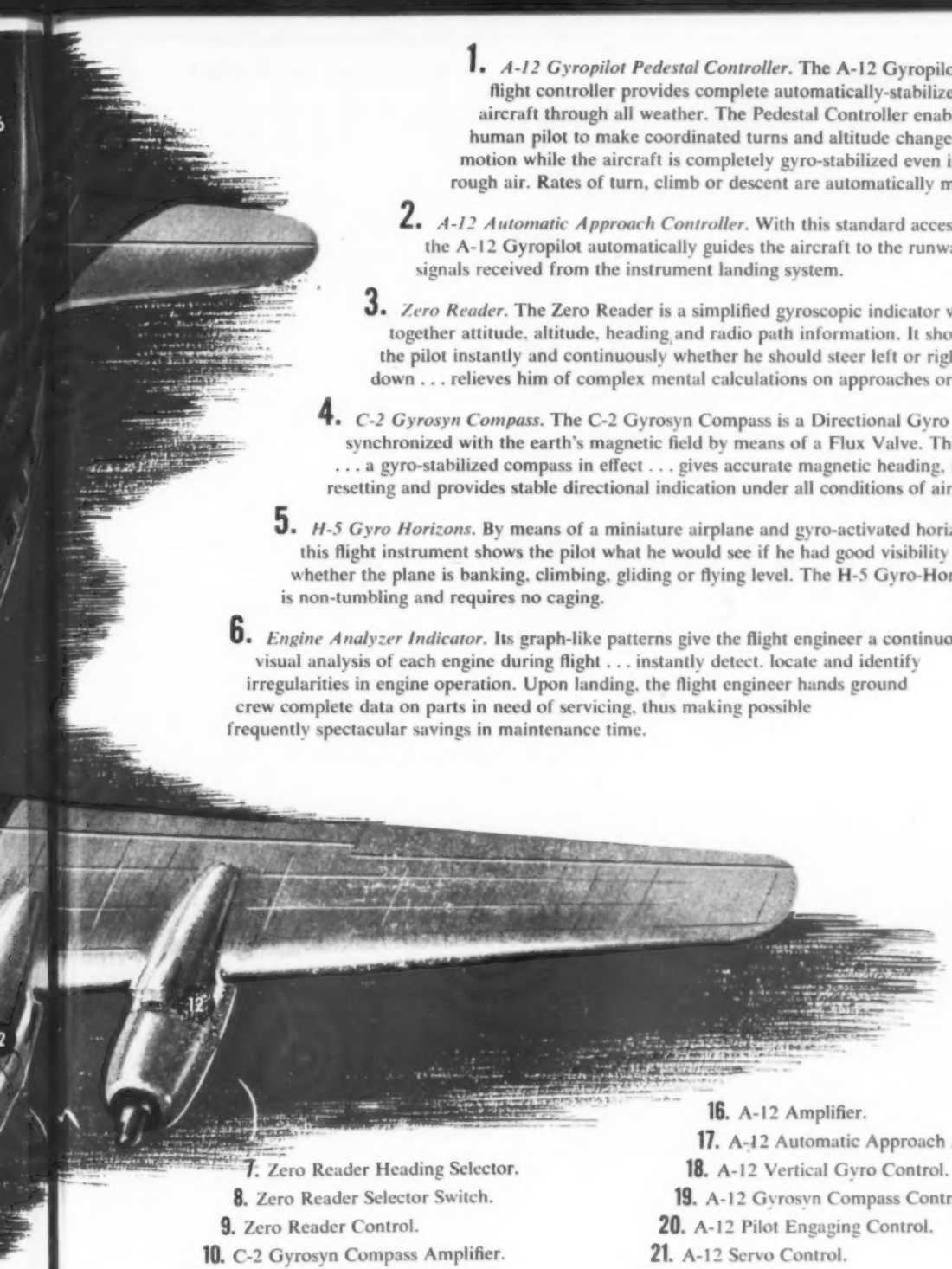
In its dependable minimizing of flight hazards and delays, Sperry equipment reflects both the Company's 40-year experience in the aviation field and the effective service and world-availability of Sperry field engineers.

All over the world, aircraft of every type—commercial and military—are getting top-quality performance from the top-quality equipment designed and manufactured by Sperry.

Gyropilot, Gyrosyn and Zero-Reader are Sperry trademarks, Reg. U. S. Pat. Off. Sperry Engine Analyzer is manufactured under John E. Lindberg, Jr. Pat. No. 2,... Other U. S. and foreign patents pending.

SPERRY GYROSCOPE COMPANY
DIVISION OF THE SPERRY CORPORATION

GREAT NECK, NEW YORK · CLEVELAND · NEW ORLEANS · BROOKLYN · LOS ANGELES · SAN FRANCISCO · SEATTLE
IN CANADA—SPERRY GYROSCOPE COMPANY OF CANADA, LIMITED, MONTREAL, QUEBEC



1. *A-12 Gyropilot Pedestal Controller.* The A-12 Gyropilot automatic flight controller provides complete automatically-stabilized control of the aircraft through all weather. The Pedestal Controller enables the human pilot to make coordinated turns and altitude changes by slight finger motion while the aircraft is completely gyro-stabilized even in rough air. Rates of turn, climb or descent are automatically maintained.

2. *A-12 Automatic Approach Controller.* With this standard accessory the A-12 Gyropilot automatically guides the aircraft to the runway with signals received from the instrument landing system.

3. *Zero Reader.* The Zero Reader is a simplified gyroscopic indicator which pieces together attitude, altitude, heading and radio path information. It shows the pilot instantly and continuously whether he should steer left or right, or go up or down . . . relieves him of complex mental calculations on approaches or landings.

4. *C-2 Gyrosyn Compass.* The C-2 Gyrosyn Compass is a Directional Gyro synchronized with the earth's magnetic field by means of a Flux Valve. This instrument . . . a gyro-stabilized compass in effect . . . gives accurate magnetic heading, requires no resetting and provides stable directional indication under all conditions of air turbulence.

5. *H-5 Gyro Horizons.* By means of a miniature airplane and gyro-activated horizon bar, this flight instrument shows the pilot what he would see if he had good visibility outside—whether the plane is banking, climbing, gliding or flying level. The H-5 Gyro-Horizon is non-tumbling and requires no caging.

6. *Engine Analyzer Indicator.* Its graph-like patterns give the flight engineer a continuous visual analysis of each engine during flight . . . instantly detect, locate and identify irregularities in engine operation. Upon landing, the flight engineer hands ground crew complete data on parts in need of servicing, thus making possible frequently spectacular savings in maintenance time.

7. Zero Reader Heading Selector.
8. Zero Reader Selector Switch.
9. Zero Reader Control.
10. C-2 Gyrosyn Compass Amplifier.
11. C-2 Gyrosyn Compass Flux Valve.
12. Engine Analyzer Synchronizing Generators.
13. Engine Analyzer Cycle Switch.
14. Engine Analyzer Condition Switch.
15. Engine Analyzer Power Supply-Amplifier.
16. A-12 Amplifier.
17. A-12 Automatic Approach Amplifier.
18. A-12 Vertical Gyro Control.
19. A-12 Gyrosyn Compass Control.
20. A-12 Pilot Engaging Control.
21. A-12 Servo Control.
22. A-12 Rudder Servo.
23. A-12 Aileron Servo.
24. A-12 Elevator Servo.
25. A-12 Elevator Trim Tab Servo.
26. A-12 Flux Valve.

No Drastic Action Expected on C-46's

DESPITE the year-end rash of Curtiss C-46 accidents, no drastic action affecting the general operation of C-46's in non-scheduled passenger-carrying operations can be expected. Civil Aeronautics Board sources indicate that even the handling of the proposed ruling, which would reduce the gross operating weight of the C-46, is continuing at a routine pace.

The CAB examiner's report on the findings of the official hearing on the proposed regulation is expected late in January.

This examiner's report, to be made public when presented to the board, is to be followed by a period when oral or written arguments, contesting the findings, may be presented by the interested parties. Only then does official CAB action follow. In the case of the proposed gross weight reduction for the C-46's, CAB action would have to be a basic change in regulations, requiring generally higher operating standards for aircraft certificated under Part 3 of Civil Air Regulations. Such a ruling is considered unlikely on the technical level within the Board.

Meanwhile, CAA has acted in a positive manner, going to what many people feel is the heart of the problem: operational procedures. In a telegram to all regional administrators, E. S. Hensley, director of CAA's Office of Aviation Safety, ordered an intensified inspection campaign of all C-46's. "Disregarding regular assignments and office hours for three days", CAA agents across the country made 331 inspections of C-46 aircraft.

Initial result of the 331 inspections showed over 350 discrepancies in operating and maintenance procedures, eight of such a serious nature that formal violations were filed against the operators. The results are still coming in, but an indication of the nature of the problems was contained in the Sixth Region report, in which 211 maintenance irregularities were reported, along with 27 chargeable to operations, and 12 to radio.

Hensley's direction to his staff:

(1) make as many inspections of C-46 operations as possible.

(2) inspect for full compliance with all engine inspection and overhaul periods.

(3) to fullest extent possible, witness engine run-up prior to take off.

(4) check for overloading of aircraft.

(5) file violation reports on cases of overloading, or the exceeding of inspection or overhaul times.

What's doing at JACK & HEINTZ

Actuators Prove Value of Intercompany Engineering

OFFER WIDE RANGE OF PROTECTION

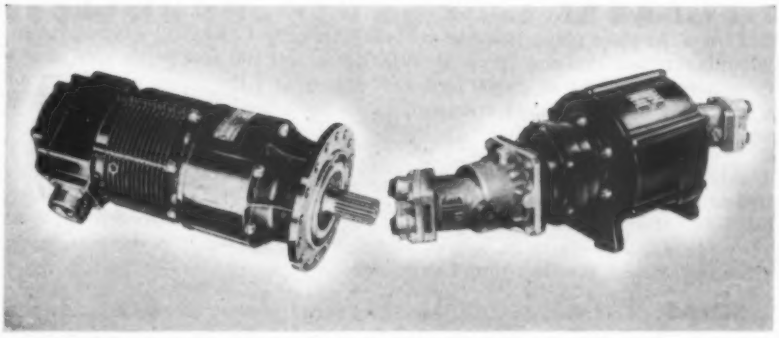
Jack & Heintz regularly engineers into special-purpose electric and hydraulic actuators such features as brakes, disconnects, emergency drives, automatic positioning, and torque-limiting clutches.

Successfully combining one or more of these features into a particular unit is invariably the result of close co-operation between airframe engineers and ourselves. Established designs with proven features serve merely as a starting point for us in developing actuators for your special needs.

Some of the advanced design features of Jack & Heintz actuators include brazed commutator connections and elimination of banding wire on armatures. The ingeniously designed torque-limiting clutches, incorporating 10 years of research and development on both materials and lubricants, provide long wear, ease of adjustment and minimum weight.

Where short stopping times are important, brakes of our own design, or an automatic disconnect of the output shaft, can be incorporated on the actuator to prevent overrun.

These features, and many others, can be designed into either electric or hydraulic actuators engineered to your needs.



NO SUCH THING AS A TYPICAL J&H ACTUATOR—The units shown here are special-purpose actuators built by working closely with our customers' engineers. The rotary actuator on the left is electric. That on the right is hydraulic. Each represents the successful solution of specific problems.

Chief Engineer's Corner

One section of our Engineering Department is devoted solely to the design and development of actuators. This section is staffed with some of the most competent of all of our mechanical and electrical engineers. Men assigned to this section are carefully screened to make sure that they have a genuine interest in aircraft, since a knowledge of the actual airplane requirement is of prime importance in the design of actuators.

Many times we find that it is next to impossible to define all of the requirements for actuators by specification, and we then send our engineers to the airplane plant to see the actual installation, discuss requirements with the customer's engineers, and get an actual "feel" of the job to be done. Sometimes we end up with a bigger job than our customer originally intended, and produce an actuator design that takes on a larger portion of the airplane system than the first inquiry, and thereby eliminate other assemblies and simplify the over-all system.

In other instances, we find that an actuator built to the specification does not make for the reliability, ease of maintenance, etc., that we know our customers would want, even though these factors are impossible to fully cover by specification. In a matter of hours, our design engineers can be in your plant, discussing the details of an actuator design with your engineers. With them, they carry a wealth of experience on torque-limiting devices, gearing, mechanisms, brakes, etc., all of which can be put into a design especially for your application.

In addition to knowing what we can do, they also have many years of experimental work on thousands of research and development programs, so that they are aware of the unsuccessful experiments which can save you many headaches in the future. They will give you honest answers to your questions, rather than glowing promises dreamed up to sell you a J&H product.

These engineers are as close to you as your telephone. We'll be only too glad to discuss your actuator problems with you. Write JACK & HEINTZ, INC., Dept. 101, Cleveland 1, Ohio.

JACK & HEINTZ *Rotomotive* EQUIPMENT

© 1951, Jack & Heintz, Inc.

means electrical, hydraulic or mechanical devices designed to solve unusual problems of developing power, controlling it, or using it.

Production Spotlight

Beech: Beech Aircraft Corp. will conduct a pilot-training school for Army pilots, in conjunction with the Army's order for four YL-23 Twin-Bonanzas. The Army will send eight pilots to the company's Wichita plant, each of whom will receive three to five hours' instruction in the YL-23. Vern Carstens, Beech chief test pilot, will be in charge of the training program.

The Army YL-23's will be the same as the first seven of the prototype series of the commercial Twin-Bonanzas, except for additional radio equipment. The YL-23 is a six-place plane powered by two Lycoming GO-435-32 engines, with a 190 mile-per-hour cruising speed at 10,000 feet, a 1,500 foot-per-minute rate of climb, a service ceiling of 19,000 feet, and a range of 1,155 miles. The YL-23 will be adaptable as a personnel transport, cargo carrier, ambulance plane or twin-engined trainer.

Air Carrier: **Aero Design & Engineering Co., manufacturer of the twin-engined Aero Commander executive plane, have named Air Carrier Service Corp. distributor of the plane in the Far East. Air Carrier has headquarters in Washington, D. C., and offices in Saigon, Bangkok and Tokyo. It is the first foreign distributor named for the Aero Commander.**

SOIAS: The Air Force will conduct a series of tests on ski-equipped Ryan Navion Super 260's this winter in project "SOIAS"—Sliding On Ice And Snow. The project, scheduled to continue through April, will be conducted within a 300-mile radius centering at Kenora, Ontario. Reason is to determine the most effective use of airplane skids in a wide range of snow and ice conditions. Modification of the Navions, including installation of heaters and instrumentation to record the ski data, was handled in the engineering shops of the USAF's Wright Air Development Center at Dayton, O.

Closed: **Boeing Airplane Co.'s Stratojet Training School at Wichita, Kans., has been closed down following graduation of the 937th and last student. The school was set up to train Air Force pilots, mechanics, and technicians in handling and operation of the B-47 jet bomber while regular USAF Air Training Command service schools were being activated at various locations in the country.**

Expansion Notes: American Helicopter Co. is now occupying its recently completed 15,000-square-foot building adjacent to its Manhattan Beach, Calif., facility. The new building houses general offices, the engineering department and the engineering laboratory . . . North American Aviation has proposed to the Air Force the lease of an additional building at Fresno (Calif.) Air Terminal, where the company now leases 32 buildings, totaling 224,363 square feet, from the city. The Fresno facility is scheduled to become a modification center for North American planes . . . Boeing Airplane Co. has leased two buildings in downtown Wichita, Kans., for office space . . . Lockheed Aircraft Corp. plans to expand its flight test facility at Palmdale, Calif., by a 240-foot addition to its flight test hangar. The company has started test operations on the F-94C jet all-weather fighter with 52 employes, and expects to have 250 at work by April.

Backlog: **Cessna Aircraft Co.'s backlog went up 160% in the last fiscal year, from $30,000,000 to about $80,000,000. The company now operates three plants in Kansas, at Wichita, Hutchinson, and Prospect, working on prime contracts for L-19 liaison planes and LC-126 utility planes and subcontracts on the Boeing B-47 jet bomber, Lockheed T-33 and F-94 jets, and the General Motors version of the Republic F-84F.**

Modification: Douglas Aircraft Co. has received a letter of intent from the Air Force to set up a modification center for Boeing B-47 jet bombers at its Tulsa, Okla., plant, in addition to planned production of the B-47 there. The modification program will start early this spring and will employ more than 600 workers, who will be transferred to manufacturing operations when the modification program is completed.

Thermoid Buys Mead: **Thermoid Co., Trenton, N. J., has acquired all the outstanding stock of Mead Aviation Equipment Co., also of Trenton, which manufactures safety belts and parachutes for the Air Force. Purchase price was not disclosed. Mead has a backlog of $2,400,000.**

J.J.H.

INDUSTRY PERSONNEL

Boeing Airplane Co. has named **Wellwood E. Beall** senior vice president, **C. B. Gracey** vice president-manufacturing at Wichita, and **Clif Barron** vice president-divisional controller at Wichita.

BEALL GRACEY

Other Boeing changes make **Clyde Skeen** assistant to the vice president-controller; **Jack Clark** modification center manager; **N. D. Showalter** chief engineer at Wichita; **Robert L. Regan** operations manager; **Harold Abling** factory manager; **Howard Hurst** general superintendent of production manufacturing; **Roger P. Holman** plant facilities manager and **Earle E. Barnes** his assistant; **Phil L. Beatty** assistant industrial relations director at Wichita; and **Roscoe P. Boone** personnel manager at Wichita.

Prewitt Aircraft Co. has named **Thomas H. Purcell** chief design engineer, **Clarence K. Burnside** manager of the subcontracting department and **Orian Reasor** chief inspector . . . **Lt. Gen. Elwood R. Quesada** (USAF, Ret.) has joined Olin Industries as a director and vice president.

Newly named chief test pilot for Gyrodyne Co. of America is **James V. Ryan.** Gyrodyne recently elected **E. J. (Bud) Huber,** vice president-customer relations, and **Donald W. MacVicar,** vice president-manufacturing, directors of the company.

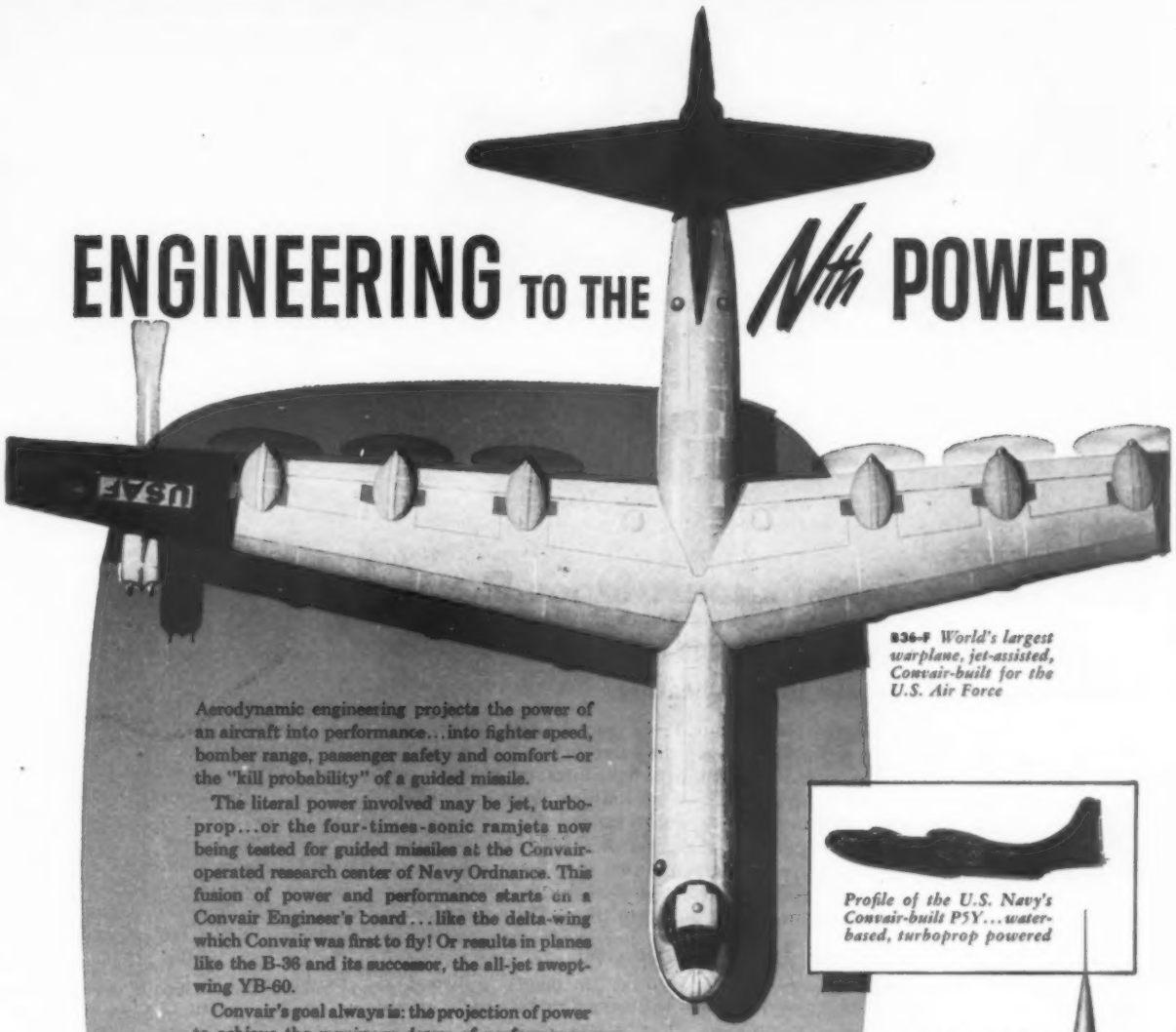
Vernon N. Ferguson has been designated chief industrial engineer for Texas Engineering & Manufacturing Co. . . . Bell Aircraft Corp. has chosen **Laurence P. Saunders** chief administrative engineer of the helicopter division.

Pacific Airmotive Corp. has appointed **M. A. Wachter** division manager-manufacturing, **D. R. Wetmore** his assistant, and **Richard D. Maystead** to the additional position of director of engineering . . . General Electric Co. selected **W. H. Bobear** manager of subcontracting for the Aeronautic and Ordnance Systems Department.

New supervisor of change control for Ryan Aeronautical Co. is **Melvin E. Thompson** . . . **Harold A. Clough** has been selected assistant sales manager for Parker Aircraft Co. . . . **Rear Adm. T. A. Solberg** (Ret.) has become a general consultant for Arma Corp. . . . **Max S. Simpson** has been promoted to controller of Curtiss-Wright's Electronics Division.

Kaiser-Frazer Corp. selected **E. R. Ordway** general manager of aircraft production on the West Coast.

ENGINEERING TO THE *Nth* POWER



B36-F *World's largest warplane, jet-assisted, Convair-built for the U.S. Air Force*

Aerodynamic engineering projects the power of an aircraft into performance... into fighter speed, bomber range, passenger safety and comfort—or the "kill probability" of a guided missile.

The literal power involved may be jet, turboprop... or the four-times-sonic ramjets now being tested for guided missiles at the Convair-operated research center of Navy Ordnance. This fusion of power and performance starts on a Convair Engineer's board... like the delta-wing which Convair was first to fly! Or results in planes like the B-36 and its successor, the all-jet swept-wing YB-60.

Convair's goal always is: the projection of power to achieve the *maximum degree* of performance. The maximum, the Nth degree of air power... *the Nth Power!*

Profile of the U.S. Navy's Convair-built P5Y... water-based, turboprop powered

Guided missiles will be mass-produced by Convair in America's first exclusive missile plant.

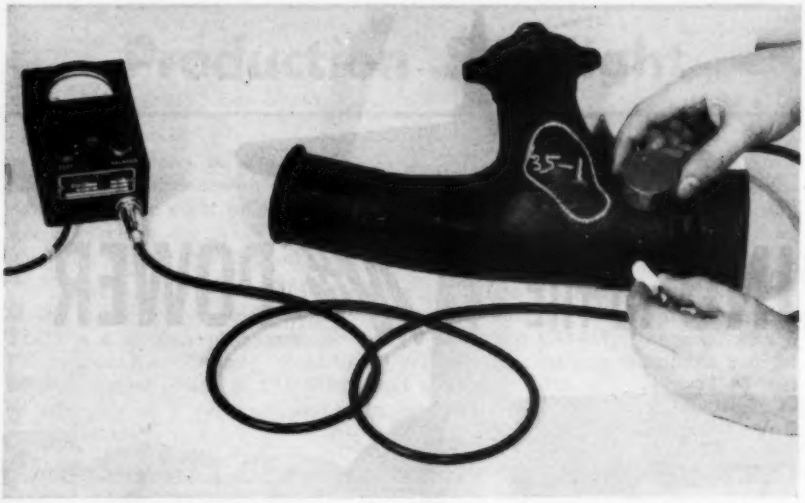
IN THE AIR IT'S

CONVAIR

SAN DIEGO, CALIF. • POMONA, CALIF. • FORT WORTH, TEXAS

Convair-Liner
unequalled for safety, preferred by passengers and pilots... more Convair-liners used by more airlines than any postwar plane!

CONSOLIDATED VULTEE AIRCRAFT CORPORATION



MORE RELIABLE INSPECTION of engine exhaust systems, heater jackets, and heat-resistant sheet steels of jet engines is promised by the Magne-Probe.

New Tester Spots Exhaust Stack Flaws

Sensitive device offers simple means of detecting hidden weak spots caused by overheating.

A NEW and unique instrument for inspecting aircraft engine exhaust stacks and manifolds and other aircraft components of heat-resistant steel during overhaul activities has been designed and built by the American Instrument Company, Inc., of Silver Spring, Maryland. The unit, known as the Magne-Probe, is now being placed in production.

The Magne-Probe provides the first simple means of determining the extent to which overheating has weakened a part and rendered it unfit for continued use. It does not detect pure mechanical failures unrelated to excess heat. This type failure, however, is generally apparent from visual inspection.

While designed to meet the specific requirements of overhaul inspection of aircraft engine exhaust systems, the Magne-Probe might well be used in exactly the same manner for determining incipient failures in stainless steel shells of combustion heaters, jet engine parts, welds, etc.

Stainless steel and Inconel, alloys commonly used in exhaust system components, have very little ability to conduct magnetic flux. This characteristic, known as low magnetic permeability, changes when the part is subjected to excessive heat in ranges sufficient to impair the structural strength of the part.

The Magne-Probe is a very sensitive instrument for measuring the permeability of these alloys. Its range is such that it normally reads zero when placed on a stack which is in good condition. A small probe, about the same diameter as a pocket watch, is moved across the surface to be inspected. As the probe passes over a spot which has been subjected to prolonged and excessive heating the needle of the measuring instrument swings toward a high reading.

The instrument operates on 115-volt, alternating current. It is 2 x 3 x 4½ inches in size and is rated at five watts. Specifically, it is an extremely sensitive and stable bridge, which measures the inductance of a coil, the core of which is the structure being tested. The inductance of the core is proportional to the permeability of the core material and, in this application, a measure of the heat-corrosion of the unit being tested.

Experienced Company

American Instrument Company is not an aviation firm. It is a company which has designed and built some 2,000 types of precision instruments. Its interest in the Magne-Probe was generated by Pan American Airway's Max Rodofsky, an engine inspector, who first noted the magnetic characteristics of exhaust stack components when subjected to overheating.

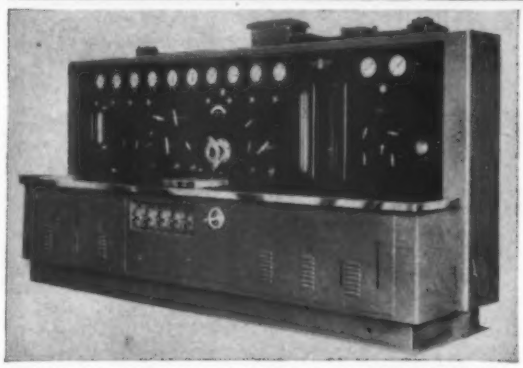
Reaction has been pretty uniform. At first glance mechanics comment that "it'll never replace the hammer." Actually, the hammer is the principal inspection tool now used in exhaust stack checks. Parts which appear corroded are tapped with a hammer to see if they have enough structure remaining to last another engine run. The accuracy of the test is proportional to the strength of the mechanic swinging the hammer.

After a few minutes of actual exhaust stack checking with the Magne-Probe, the man takes on a different attitude. It becomes apparent that the new instrument is capable of detecting conditions not apparent to the eye. It is capable of differentiating between simple surface corrosion and penetration that affects unit life.

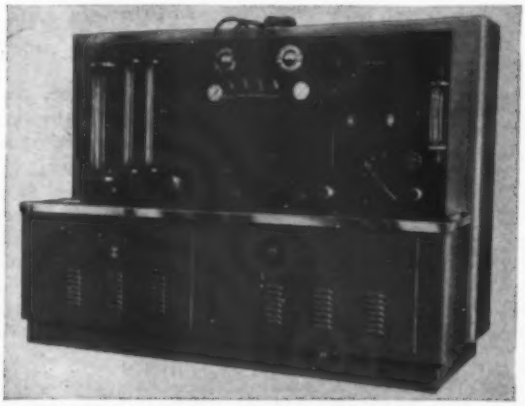
As the meter is currently used, AIC has suggested that a half-scale reading, in this case a numerical value of 25, be the dividing line between good and bad stacks.

The Magne-Probe, which costs $125, appears to be the first instrument designed which will serve the important function of determining the degree of mechanical deterioration caused by overheating in this type application. Those who have used the instrument agree it will reduce the manhours required for inspection, provide an accurate index to the area which must be patched in the event that repairs are to be attempted, and generally improve the life expectancy of stacks returned to service.

GREER AIRCRAFT FUEL BOOSTER PUMP TEST STANDS (upper left) are shown installed in National Aircraft Maintenance Corp., Newark, N. J. These machines test external and submerged type pumps, measure flows up to 3600 pph and pressures up to 100 psi. Operate 12 or 24V dc up to 30 amps.



GREER JET ENGINE FUEL SYSTEM ACCESSORIES Test Stand is designed specifically to check fuel pumps, fuel regulators, stop-cocks, flow dividers and other accessories of all jet aircraft. With this machine, flows up to 30,000 pph and pressures up to 800 psi are accurately and quickly measured.



GREER DUAL FUEL BOOSTER PUMP TEST STAND for jet and reciprocating engines, will handle two submerged, external or transfer pumps simultaneously, measure flows up to 60,000 pph with pressures up to 300 psi. Equipped with explosion-proof rectifier up to 30V dc and 100 amps capacity.

Greer Reveals Advanced Test Methods

Latest equipment takes guesswork out of maintenance, substitutes absolute dependability of precision machinery

Greer Hydraulics Inc. is in a very specialized business... the production of aircraft testing equipment. It calls for absolute accuracy from drawing board to assembly.

Each machine must be painstakingly engineered and carefully tested in each stage of production. It takes experience that is difficult to find elsewhere. The men who design and build Greer equipment have many years behind them in this narrow field. It is they who deserve the credit for Greer's enviable reputation the world over for dependability, accuracy and service.

In addition to standard testing models, many special machines have been developed to meet out-of-ordinary requirements. Write or call today, and let Greer engineers help you. No obligation of course.

GREER
TEST EQUIPMENT

GREER HYDRAULICS INC. · 460 EIGHTEENTH STREET · BROOKLYN 15, NEW YORK

Field Office: Greer Hydraulics, Inc., 298 Commercial Bldg., Dayton, O. • *Representatives:* Thomson Engineering Service, 708 Hemphill St., Fort Worth 4, Tex. • Harold E. Webb, 918 N. Kenilworth Ave., Glendale 2, Cal. • Daun & Bleck, Rua Dos Fanqueiros, 261,1°Lisbon, Port. • Astra Aircraft Corp., 29-31 Simmonds St. Ext., Johannesburg, South Africa.

New Products

Miniature Sliprings

Available from Naer Corp. are a range of subminiature sliprings for use with motor components, synchro generators and transformers, servo-mechanism systems, and other electronic applications in aircraft and guided missiles.

Manufacturer states that the sliprings have mechanical and dielectric strength, insulation and arc resistance, absolute minimum torque friction, and a compact construction with silver, gold, or platinum rings molded in place. The electronic components are fabricated with Formex Magnet Wire coated with Naer L-45 insulation, which was developed to have flexibility, dielectric strength, and resistance to heat and shock. Sliprings are then molded with compound NC-101, which has a tensile strength of PSI 4,000 to 4,500, flexural strength of PSI 6,000 to 6,500, and a heat distortion temperature of 225 to 235 degrees Fahrenheit. Units are factory-tested to 1,000 volts.

Address: **Naer Corp.,** 631 South Sepulveda Blvd., West Los Angeles 49, Calif.

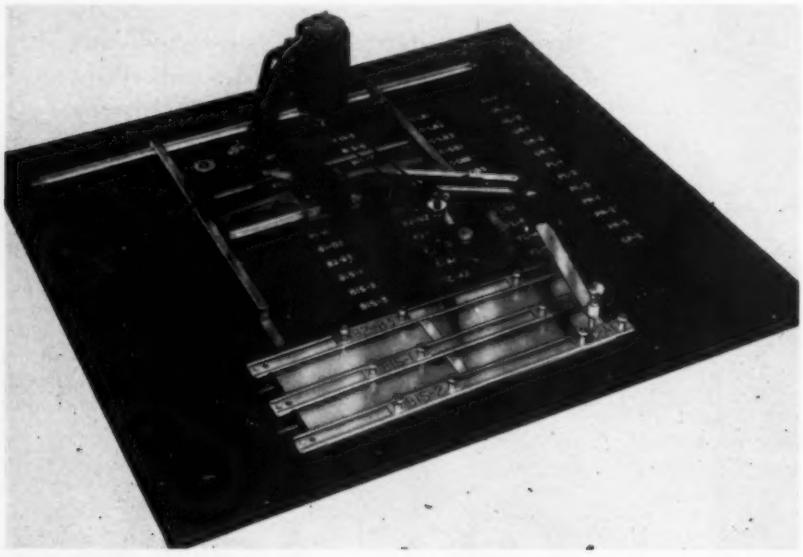
Ear Protector

Sigma Engineering Co. has developed a mechanical ear protector called the Lee Sonic Ear-Valv which will stop loud, sudden noises from reaching the eardrum and yet admit conversational tones. Device is a small, self-contained unit requiring no wires or batteries. It is described as a sonic filter operating on a principle similar to the natural protective mechanism of the human ear. It also eliminates the force caused by the vacuum following an explosion.

The Valv is activated by air pressure as well as sound pressure, and therefore serves to equalize air pressure changes, which sometimes bother air travelers. Design of the device is said to encourage its use in industrial applications because, while the plug filters out heavy machine noise, it permits the wearer to hear conversations, signals, warnings, and machine irregularities.

The Ear-Valv is made of non-corrosive materials and soft rubber. It retails for $3.95 per pair, but manufacturer offers "substantial" discounts to government and industry.

Address: **Sigma Engineering Co.,** 1491 No. Vine, Los Angeles 28, Calif.

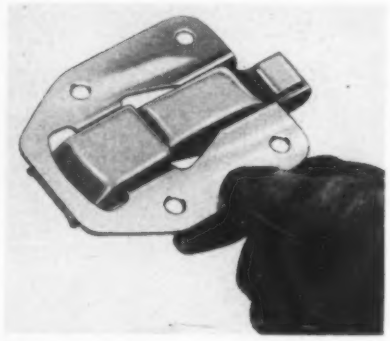


Engraving Machine

A new industrial engraving machine designed for work on panels of any dimensions is available from New Hermes, Inc. Feature of the machine is a detachable chassis which can be removed from the base and placed directly on the work, permitting engraving of permanent installations without dismounting them.

The machine is tracer guided, permitting operation by unskilled personnel. It is capable of reproducing 15 different sizes of letters and numbers from one master alphabet and can do multiline engraving with only one set-up necessary. Adjustable copy-holding slides allow for three or more lines of engraving on a single set-up.

Address: **New Hermes, Inc.,** 13-19 University Place, New York 3, N. Y.



Flush Latch

A new flush latch for heavy-duty applications on interior and exterior surfaces of all types of aircraft is being offered by Hartwell Aviation Supply. Bolt of the latch contains a spring-loaded button that allows for variations in closure contact and misalignment, which insures tight closure of access panels and doors.

Designated part No. H-5150, the latch opens only when a substantial direct pressure is applied to it, thus guarding against accidental releasing by light loads and vibration. The new latch is made of heavy-gage stainless, coated, cold-rolled steel, or of heat-treated aluminum in a variety of combinations of trigger and bolt offsets.

Address: **Hartwell Aviation Supply Co.,** 9035 Venice Blvd., Los Angeles 34, Calif.

Couplings

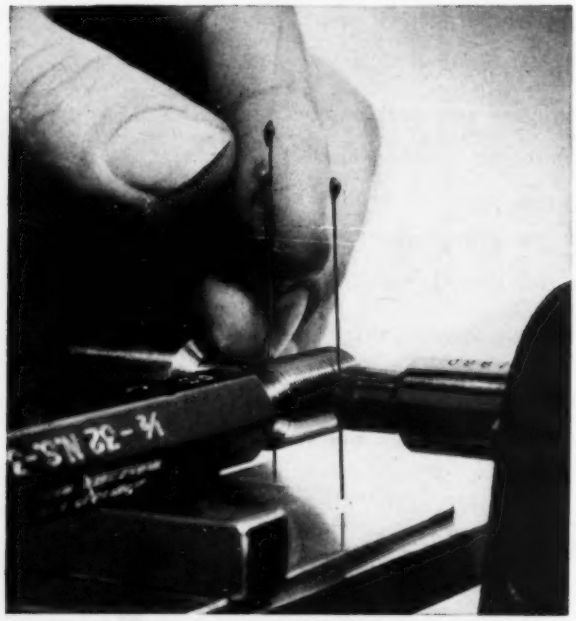
Pneumatic couplings designed for oxygen systems, missiles, and gun chargers are being produced by E. B. Wiggins Oil Tool Co., Inc. The coupling can be connected and disconnected against high pressures.

When one of the mating halves is

pulled away, a valve-closing action takes place which prevents loss of pressure in

GAGE INSPECTORS MAKE COMPLETE DIMENSIONAL ANALYSIS OF GYRO GIMBAL PARTS. THIS WORK IS DONE IN TEMPERATURE CONTROLLED ROOMS.

How G-E Aircraft Instruments Are Inspected



PLUG GAGE STANDARDS are checked every other day with this supermicrometer which measures to six decimal places—0.000010.

Rigid checks of both parts and standards assure dependable aircraft instruments

Gyro gimbals, for instance, which are vital to good rotor action, are subjected to 51 tests and inspections before completion. At the same time each test standard is checked every other day for accuracy. For information about available instruments, contact your G-E aviation specialist or write Section 607-25, General Electric Company, Schenectady, N. Y.

FINISHED PARTS are checked right on the assembly floor with plug gage standard pictured at left. Tolerances as close as 0.0001 in. are maintained.

Sixty-seven years of instrument experience—

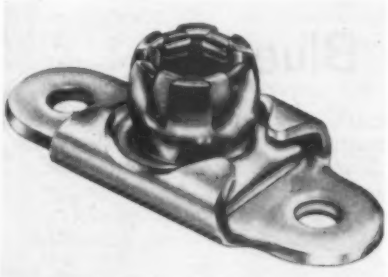
GENERAL ELECTRIC

607-25

pulled away, a valve-closing action takes place which prevents loss of pressure in the line. When the halves are joined, the self-locking action of the dogs makes positive connection. Made of aluminum steel, the product measures less than two inches in length and has a diameter of less than one inch. It weighs less than two ounces.

On oxygen systems, the manufacturer states that the couplings can be used regardless of whether the filler system has check valves. No wrench is needed to join or separate the coupling.

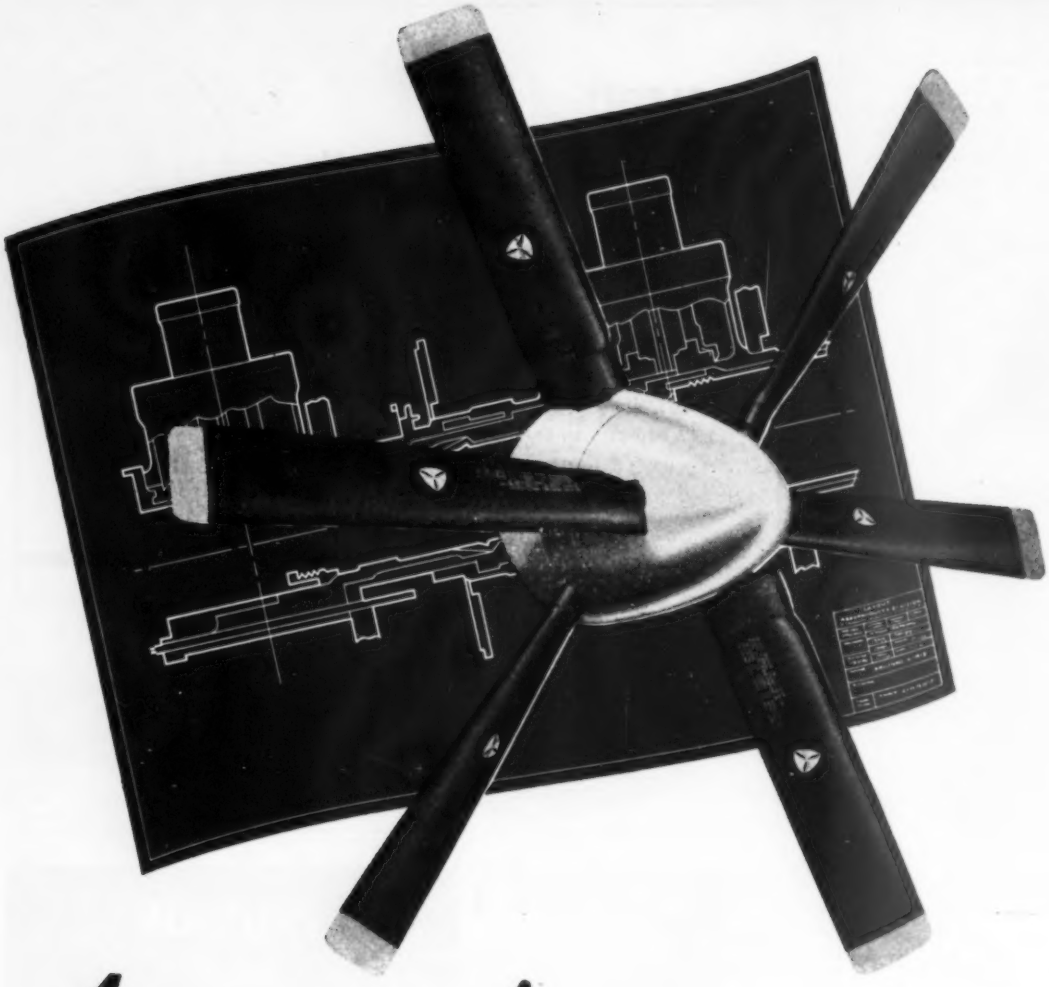
Address: **E. B. Wiggins Oil Tool Co., Inc.,** 3424 E. Olympic Blvd., Los Angeles, Calif.



Self-Locking Nut

A new lightweight self-locking nut is in production at Boots Aircraft Nut Corp. Designated H65 Floating Anchor Plate-Lok Series, it conforms to specifications AN366 and AN362.

The new nut is of one-piece, all-metal construction, but design has been altered to reduce the weight to less than previous nuts by approximately 33 per cent. Applicable at temperature ranges of both 250 degrees and 550 degrees Fahrenheit, the nut is being made avail-



Aeroprop!

Performance starts with a Blueprint

As far back as 1945, an idea was born and put into blueprint form at Aeroproducts.

It was a blueprint for performance—for greater range, greater climb and greater flexibility of operation for planes with near-sonic speed. For this Aeroprop was the first propeller to handle successfully the enormous thrust of turboprop engines.

That was the beginning, but other features were quickly added—features that are adding materially to the performance of the U. S. Navy's XP5Y, XA2D, R3Y, and others unannounced. Today, this great Aeroprop is reversible, to cut landing runs smoothly and safely. It has electronic governing and synchronizing circuits to control engine speeds automatically and provide steady, accurate and rapid response of plane to throttle. *And Aeroprop's self-contained hydraulic system simplifies both installation and maintenance.*

Call the men at Aeroproducts for consultation on any propeller application in the subsonic, transonic or supersonic range. Aeroproducts—America's pioneer in the turbine propeller field!

ENGINEERS WANTED!
A great opportunity for design engineers, tool, die and model makers as well as draftsmen. Write Aeroproducts, giving details of background.

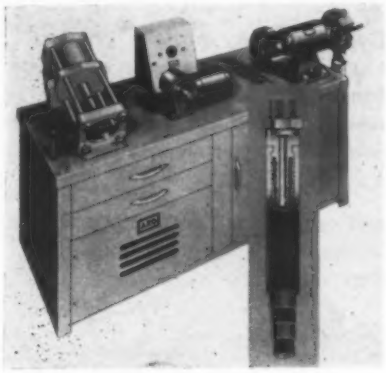
Building for today
Designing for tomorrow

Aeroproducts

AEROPRODUCTS DIVISION • GENERAL MOTORS CORPORATION • DAYTON, OHIO

able in sizes 8-32, 10-32 and ¼-28 in steel, aluminum, and stainless steel baskets.

Address: **Boots Aircraft Nut Corp.,** Stamford, Conn.



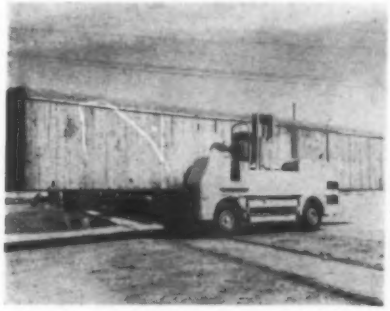
Hose Coupler

Pyles Industries, Inc., subsidiary of The Aro Equipment Corp., has introduced a new hose-coupling machine which permits manufacturing plants and industrial jobbers to make their own hose assemblies. Manufacturer states that an operator using the machine can produce a finished hose coupled at both ends in four minutes.

The new machine has a cutting wheel to cut hose to length. In the next step, a wire wheel attachment is used to skive each hose end. Then the operator manually assembles the sleeve on the hose end, inserts the coupling with power spinner and places the coupling in the press. This swages it permanently with only one pass through the die.

Stem of the fitting is so designed that the tube stock of the hose is converted during swaging into a series of chevron-type packing rings which give a positive seal. With the tube stock locked in place, "cold flow" is eliminated.

Address: **Pyles Industries, Inc.,** 8926 Second St., Detroit, Mich.



Loading Device

New Lull Traveloader permits moving of bulky loads by use of only one machine and one operator. Manufacturer states that the new machine re-

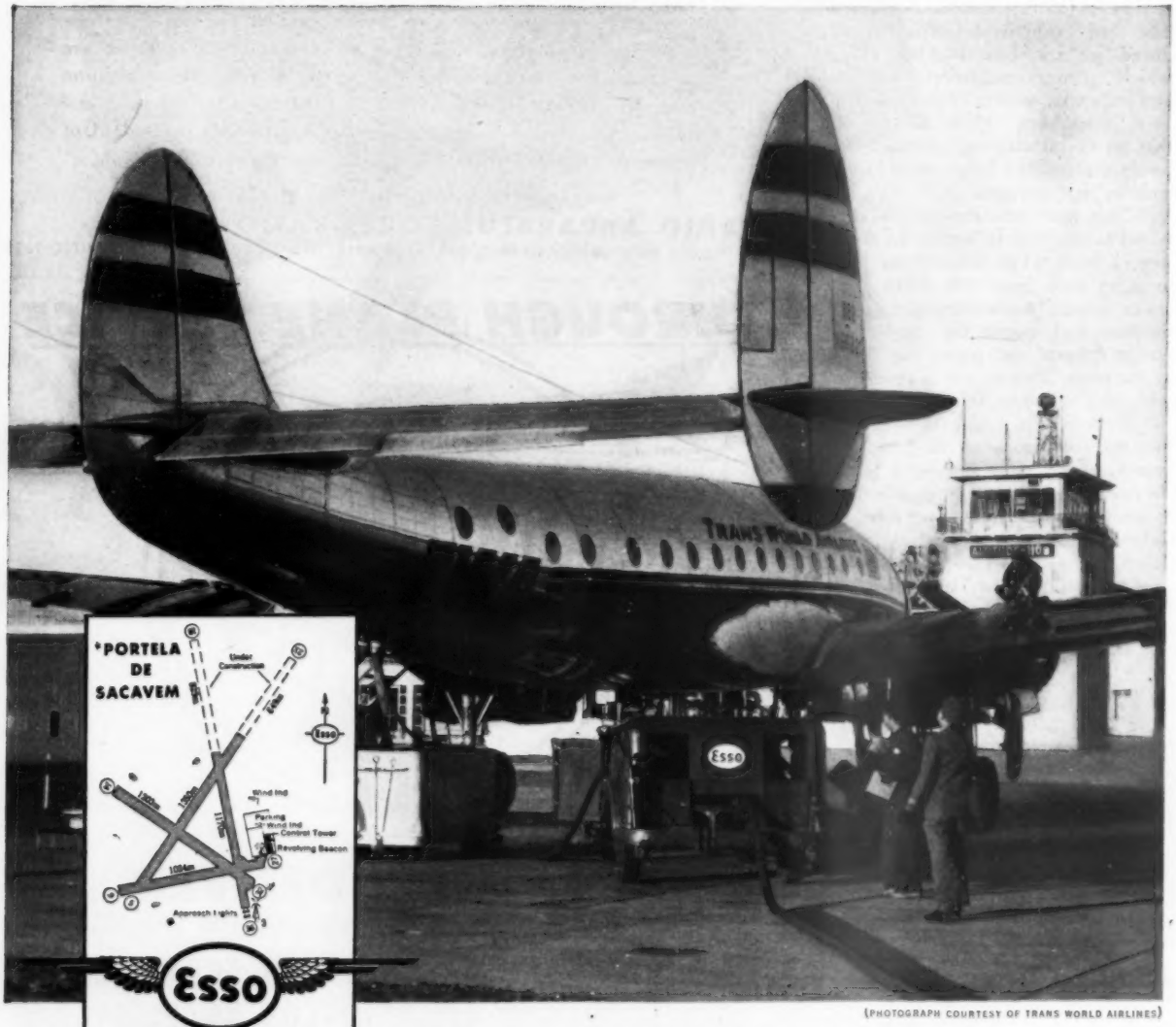
A Good Sign to Fly to...

The ancient city of Lisbon has been a principal port for centuries, located where the Tagus River meets the Atlantic. But many of today's travelers and traders make use of the excellent facilities of Portela de Sacavem Airport, now in process of being greatly enlarged.

Aircraft owners and operators rely on Esso Aviation Products here, close to Lisbon's outskirts, as elsewhere along the airways of the world. These products have been developed by research which goes steadily ahead working out newer and better means of meeting the needs of modern aviation.

The Esso winged oval symbolizes petroleum products of uniform, controlled quality backed by more than 42 years of aviation experience.

*At Portela de Sacavem Airport, as at Santa Maria Airport, Azores, the marketer of Esso Aviation Products is Esso Standard Portugal, Inc.

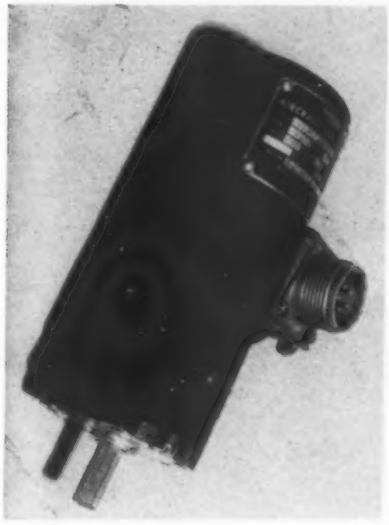


(PHOTOGRAPH COURTESY OF TRANS WORLD AIRLINES)

ESSO EXPORT CORPORATION, AVIATION DEPARTMENT,
45 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

places two conventional fork trucks, a tractor, a flat-bed trailer, and four to five men previously used. Traveloader performs the complete loading, carrying, unloading, and stacking. In the accompanying cut, the new machine is moving a crated wing section of a B-36 at Kelly AFB, San Antonio, Tex. The load measures 48 feet long, 7 feet high, and 3 feet wide and weighs approximately 5,000 pounds.

Address: **Lull Manufacturing Co.,** 3612 E. 44th Street, Minneapolis, Minn.



Actuators

New being produced by Pacific Airmotive is a new series of aircraft electrical high-torque, 24 VDC actuators. Weighing less than 1¼ lbs., this actuator has a maximum torque of 110 inch-pounds at 2 rmp. Complete unit includes radio noise filter meeting the MIL-6181 government specification. Dynamic braking relays can also be incorporated in the same envelope.

Address: **Pacific Airmotive Corp.,** 2940 North Hollywood Way, Burbank 5, Calif.

Pressure Switches

Available from Manning, Maxwell & Moore are new aircraft pressure switches in three different basic designs. They can be adapted to any aircraft application and include special types for individual needs. High static pressure gauges or differential pressure switches are available for jet-engine installation; low static pressure gauges or differential pressure switches, for airframe installation; and hermetically sealed high static pressure gauges or pressure switches, for rocket installation.

Address: **Manning, Maxwell & Moore, Inc.,** Stratford, Conn.

Lockheed

BOOSTS PROFITS FOR AIR CARGO OPERATORS

Air freight traffic has increased 467% since 1946, continues to grow at a rapid clip. During this period, Lockheed engineers worked steadily on the problems created by this fast-growing business and have come up with much-needed developments.

Some of these developments were recently previewed by airline executives and military officials in a 3-day seminar held at Burbank. It was revealed that Lockheed (1) has a new Super Constellation cargo plane designed to reduce freight-carrying costs, and (2) has thoroughly analyzed the problems of loading, tying down, unloading and handling of freight at airports. One exhibit was Lockheed's mechanically operated scale model of "the ideal air cargo terminal," which has attracted national attention.

The new Super Constellation cargo plane is the most highly mechanized freight carrier yet designed. Some of its outstanding advantages:

1. Solves major interior handling problems with three exclusive features: an all-metal (magnesium) floor, a built-in mechanical conveyor, and a portable, airborne cargo elevator of 10,000 pounds capacity.
2. Carries "more cargo farther and faster" than any other airplane.
3. Increases carrying capacity, both in total floor space and weight.
4. Guarantees greater profits because of its low direct operating cost—actually 4.9 cents per ton-mile.

The Super Constellation is the result of a decade of air cargo research at Lockheed. It combines the experience and dependability of the world-famous Constellation transport with greater size and greater operating economy.

It is 18.4 feet longer than the standard Constellation.

It will carry 38,500 pounds, or nearly 20 tons, across the nation.

It will carry over 25,000 pounds, non-stop from New York to Paris.

It has net usable space totaling 5,568 cubic feet, equal to nearly three standard railroad refrigerator cars.

And its metal watertight floor permits much heavier load limits (300 lbs. per sq. ft. or 1000 lbs. per running ft.), higher density cargo and a wider variety of cargo.

Military versions of this airplane already have been ordered in large numbers for both the Air Force and the Navy.

Extra Section

By William D. Perreault

SOME two years ago we complained in this column about airline seats. We received many interesting and some caustic comments regarding our criticism. A note from Boeing's **Gordy Williams** informed us that the Stratocruiser seats left little to be desired, that the headrests were made of "goose down, the next softest thing to goofers feathers . . . which as you may know is made from the fuzz of peaches." We finished off 1951 with a BOAC Stratocruiser flight from London to Prestwick testing out these seats. Williams was right.

•

Northwest Airlines reports that 100 of its mechanics are attending Ramsey Vocational School where they get, among other things, training in jet engine and aircraft operations. The mechanics pay $10 tuition, and attend 150 hours during the school year in three-hour evening sessions. Monthly reports on individual progress are sent to NWA and to the International Association of Machinists. Looks like NWA boys will be ready for the turbines before the turbines are ready for them.

•

For years we've spent idle flight hours looking at the complaint forms carried in the passenger kits of airline seats—the letter-to-the-president department. Finally, enroute to and from Detroit for Vickers' hydraulic conference the first week in December, we filled out and submitted one of these forms complaining that the reading lights on this DC-4 were hopeless. The lights shone everywhere but in the reading area. A month has passed now and one thing is worrying us: Do the airlines really get so many complaints that they can't acknowledge them, or it is too early to expect a reply?

•

No date has been set for the annual engineering and maintenance conference, which has been staged by the Air Transport Association for the scheduled airlines for more years than we can remember. In past years, the meeting has been held in the early spring, with an announcement on arrangements circulated by this time of year. At the 1950 meeting, however, it was voted to change the format of the meeting and hold it later in the year. We're now told a proposal for the meeting, proposing a September date, will soon be circulated to the airlines for comment.

•

Whatever your interests might be, you should make an attempt to be at the 20th Annual Meeting, and Honors Night Dinner, of The Institute of the Aeronautical Sciences at the Hotel Astor in New York, Jan. 28th through February 1. It includes sessions on safety, aerodynamics, helicopters, electronics, rockets, turbines, structures and even gliders. How can you go wrong?

•

If you're as interested in the current status of hydraulic fluid development as you should be, with particular reference to the relatively non-inflammable fluids, you'll want a copy of "Skydrol, Nonflammable Type Hydraulic Fluid for Aircraft", a 22-page illustrated story on Monsanto Chemical Company's activities in this vital field with Skydrol, the fluid which has logged more than one-half-million flight hours. Address: Monsanto Chemical Co., St. Louis 4, Missouri.

•

Anthony W. Riccio, president of Buffalo Airpark at Gardenville, New York, reported that an American Airlines Convair-Liner made a beautiful approach into his Airpark, lowered the gear and flaps, and was a few feet off the runway when it applied power and left the scene. Seems the plane, enroute from Dallas, was scheduled to land at Buffalo Airport, five miles away. Reported the Buffalo Courier-Express: "Someplace in the wild blue yonder is a very embarrassed pilot of an American Airlines' Convair who will be spending plenty of future spare time boning up on aerial photos of the Buffalo area."

SUMMARY OF U. S. DOMESTIC AIRLINE TRAFFIC FOR OCTOBER, 1951

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR %	MAIL TON-MILES ***	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON-MILES REV. TRAFFIC	AVAILABLE TON-MILES FLOWN	% AVAILABLE TON-MILES USED	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
American	455,499	232,537,000	314,517,000	73.93	1,401,389	791,189	3,241,946	27,505,387	41,192,049	66.77	7,000,103	7,190,809	96.88
Braniff	70,424	25,700,000	38,765,000	66.30	124,677	84,723	158,996	2,825,739	5,017,630	56.32	1,059,524	1,032,237	97.42
Capital	189,435	57,995,000	92,856,000	62.46	179,183	236,368	499,611	6,460,393	12,204,132	52.94	2,305,310	2,308,127	99.05
Caribbean	6,876	561,000	1,411,000	39.76	1,603	. . . .	2,394	49,104	127,966	38.37	49,580	47,816	100.00
C & S	44,950	16,807,000	25,939,000	64.79	59,571	68,339	91,957	1,831,158	3,159,545	57.96	793,066	799,769	98.16
Colonial	23,129	5,897,000	10,737,000	54.92	9,619	7,116	12,883	606,989	1,112,242	54.57	334,358	333,423	99.37
Continental	27,528	11,083,000	20,573,000	53.87	38,449	14,106	53,691	1,166,849	2,159,374	54.04	648,112	598,083	99.18
Delta	80,429	32,995,000	49,714,000	66.37	147,975	107,355	321,242	3,741,592	6,115,791	61.18	1,380,796	1,368,113	99.40
Eastern	292,603	119,378,000	182,766,000	65.32	457,645	360,315	512,555	13,396,148	25,465,234	52.61	4,554,588	4,447,071	99.19
Hawaiian	26,500	3,364,000	6,337,000	53.09	2,375	7,925	68,017	356,115	755,776	47.12	292,464	223,984	99.36
Inland	9,664	3,957,000	5,959,000	66.40	18,110	8,145	13,499	418,996	656,248	63.85	252,185	260,090	96.96
MCA	37,891	11,685,000	20,012,000	58.39	37,684	24,258	39,399	1,220,603	2,133,743	57.20	777,567	740,571	99.77
National	46,250	27,396,000	47,869,000	57.23	93,890	46,720	421,805	3,354,219	6,352,665	52.80	1,195,613	1,137,669	99.03
Northeast	36,604	7,142,000	11,511,000	62.05	12,726	12,906	20,840	691,150	1,151,168	60.04	371,510	399,452	90.41
Northwest	74,475	47,118,000	64,240,000	73.35	201,024	129,272	294,602	5,140,148	8,696,947	59.10	1,098,906	1,099,229	98.66
Trans Pac.	11,493	1,354,000	3,843,000	35.23	1,281	150	2,570	110,465	353,507	31.25	137,368	121,996	98.49
TWA	192,520	138,570,000	179,315,000	77.28	1,082,538	596,188	1,282,276	16,233,659	23,834,877	68.11	4,426,602	4,765,394	92.46
United	267,557	170,690,000	223,170,000	76.48	1,735,960	766,623	1,906,977	20,752,307	32,979,313	62.93	5,373,842	5,308,232	99.17
Western	36,788	19,118,000	30,079,000	63.56	116,220	43,379	43,908	2,030,153	3,153,536	64.38	810,556	810,747	99.15
TOTALS	1,930,615	933,347,000	1,329,613,000	70.20	5,721,919	3,305,077	8,989,168	107,891,174	176,621,743	61.09	32,862,050	32,992,812	97.50

SUMMARY OF U. S. INTERNATIONAL AIRLINE TRAFFIC FOR OCTOBER, 1951

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR %	U. S. MAIL TON-MILES *	FOREIGN MAIL TON-MILES	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON-MILES REV. TRAFFIC	AVAILABLE TON-MILES FLOWN	% AVAILABLE TON-MILES USED	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
American	9,457	6,889,000	12,144,000	56.73	14,492	5,970	788	160,753	905,328	1,593,768	56.80	239,201	240,105	99.62
Braniff	2,610	5,137,000	14,031,000	36.61	18,686	4,026	. . . .	87,601	622,395	2,009,038	30.98	329,858	329,954	99.97
C & S	2,084	2,417,000	6,912,000	34.97	4,367	471	. . . .	66,066	324,462	957,797	33.88	148,775	143,902	99.58
Colonial	2,761	2,166,000	3,422,000	63.30	1,555	468	. . . .	8,870	239,301	411,281	58.18	65,805	62,014	100.00
Eastern	5,892	8,547,000	15,521,000	55.07	42,921	. . . .	. . . .	36,274	983,766	2,746,672	35.82	263,069	256,616	99.37
National	6,423	1,654,000	3,768,000	43.90	1,265	. . . .	3,702	34,003	208,462	495,358	42.08	70,007	64,976	99.79
Northwest	6,334	10,655,000	17,151,000	62.12	153,188	35,895	21,961	754,992	2,103,549	2,922,209	71.98	558,289	512,275	98.55
Panagra	10,339	10,945,000	18,569,000	58.94	36,994	21,634	199,934	. . . .	1,479,324	2,560,866	57.77	509,308	500,249	99.35
PAA														
Latin Amer.	57,304	57,742,000	96,186,000	60.03	272,410	47,453	. . . .	2,043,037	8,497,002	13,317,708	63.80	2,355,946	1,832,605	99.68
Atlantic	31,565	46,453,000	69,608,000	66.74	561,632	130,040	. . . .	1,319,464	7,111,033	9,373,987	72.80	1,434,794	1,462,829	94.47
Pacific	6,917	26,031,000	38,150,000	68.23	326,850	41,035	. . . .	837,609	3,896,275	5,714,921	68.18	812,861	789,905	99.55
Alaska	5,071	5,949,000	12,074,000	49.27	45,610	. . . .	. . . .	562,388	1,238,114	1,795,510	68.96	269,678	240,647	99.96
TWA	13,983	33,906,000	51,029,000	66.44	325,360	116,027	. . . .	790,635	4,958,403	7,617,551	65.09	1,242,132	1,229,125	98.24
United	3,036	7,450,000	12,808,000	58.17	64,475	. . . .	. . . .	46,171	908,098	1,868,292	48.61	246,520	261,078	94.42
TOTALS	163,776	225,941,000	371,373,000	60.84	1,869,805	402,619	226,385	6,747,863	33,475,512	53,384,958	62.70	8,546,243	7,926,280	98.23

* Includes air parcel post.

NOTE: Above figures include both scheduled and non-scheduled operations.
Data in above tabulations were compiled by American Aviation Publications from reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient and Honolulu, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing prodecures.

SUMMARY OF. U. S. LOCAL SERVICE AIRLINE TRAFFIC FOR OCTOBER, 1951

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR %	MAIL TON MILES	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON-MILES REV. TRAFFIC	AVAILABLE TON-MILES FLOWN	% AVAILABLE TON-MILES USED	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
All American	21,209	3,078,000	6,858,000	44.88	5,943	13,095	. . .	320,107	783,732	40.84	326,555	317,764	97.08
Bonanza	2,889	746,000	1,650,000	45.21	577	298	1,814	70,369	185,783	37.87	80,426	79,374	98.00
Central	4,269	614,000	2,939,000	20.89	2,687	902	2,462	68,974	315,726	21.85	131,553	121,318	97.15
Empire	3,924	814,000	2,273,000	35.81	2,075	1,539	. . .	78,217	247,462	31.61	108,275	105,834	98.59
Frontier	8,915	2,355,000	8,206,000	28.70	10,594	6,761	26,879	280,730	655,950	42.80	392,359	395,653	97.71
Lake Cent.	3,423	636,000	2,287,000	27.81	1,513	5,949	. . .	64,708	264,620	24.25	116,958	110,112	98.43
MCA*	4,008	857,000	1,760,000	48.69	1,650	3,814	3,596	90,772	198,902	45.64	82,876	83,948	98.72
Mid-West	248	39,000	263,000	14.83	848	. . .	. . .	3,993	28,984	13.78	65,873	76,322	86.31
Ozark	5,552	901,000	4,363,000	20.65	2,573	4,849	. . .	90,577	441,170	20.53	207,756	234,782	87.98
Piedmont	17,455	3,960,000	8,034,000	49.29	6,014	5,762	10,106	400,679	918,182	43.64	382,576	382,748	99.96
Pioneer	16,463	4,547,000	9,151,000	49.69	9,431	3,649	16,918	486,641	915,149	53.18	381,312	363,498	99.47
Robinson	12,159	2,020,000	3,598,000	56.14	2,840	6,140	4,319	194,757	393,034	49.55	171,350	147,129	98.33
Southern	9,981	1,738,000	5,658,000	30.72	6,998	7,122	. . .	180,211	511,128	35.26	269,440	269,018	99.11
Southwest	11,556	2,210,000	4,465,000	49.50	5,669	3,659	8,949	240,277	510,326	47.08	212,636	213,588	98.13
Trans-Texas	7,693	1,654,000	5,406,000	30.50	4,982	2,604	6,034	179,635	540,594	33.23	257,426	252,216	99.63
West Coast	6,296	963,000	2,505,000	38.44	791	764	2,218	90,374	222,373	40.64	120,604	120,962	96.28
Wiggins	259	25,000	143,000	17.48	87	154	. . .	2,502	15,206	16.45	35,653	48,910	72.89
Wis. Central	10,307	1,546,000	3,640,000	42.47	6,178	11,834	. . .	164,121	416,050	39.45	173,354	183,086	94.68
TOTALS	146,606	28,703,000	73,199,000	39.21	71,450	78,895	83,295	3,007,644	7,564,371	39.76	3,516,982	3,506,262	96.98
						Helicopter Mail Service							
HAS	. . .	. . . .	. . . .	. . .	2,273	. . .	. . .	2,273	5,596	40.62	29,163	29,746	98.04
Los Angeles	. . .	. . . .	. . . .	. . .	4,094	. . .	. . .	4,094	8,928	45.86	23,556	24,289	96.98

* Figures cover local service segment (route 100) awarded MCA by CAB in the Parks Air Lines Investigation Case.

NOTE: Above figures include both scheduled and non-scheduled operations.

On schedule with a flight plan made 25 years ago

In 1926 your Government, acting for you through the process of legislation, gave American business the job of developing an air transportation system. Air routes were assigned on the basis of competitive bidding, and the successful bidders were charged with these three responsibilities:

FIRST, to advance the art of flying. **SECOND,** to make the fullest commercial application of flying. And **THIRD,** eventually to become economically self-sufficient. As United's 25th Anniversary year ends, we would like to report to you on what our company has accomplished with respect to these responsibilities.

1 The art of flying has been advanced

In 1926, we flew tiny biplanes that cruised at 90 miles an hour. Compare them with the giant 300-mile-an-hour Mainliners that United flies today. The airplane has been considerably advanced; so, too, has been the *art* of flying. In communications, electronic navigation, around-and-over-the-weather flying and other techniques, many contributions have been made to the present-day comfort and dependability of service offered by the scheduled airlines.

2 Air transport has been made a commercial success

In 1926 the industry carried only a handful of passengers. Now, United alone carries more passengers in a single day than flew with all lines in that year. And United and the other scheduled airlines have done an efficient job, for air travel is still one of the few things you can buy at prices about equal to 1940.

3 United has become self-sufficient—Gets no air mail subsidy

Back in 1926, about 99% of all airline revenue came from air mail. Today just 7% of United's revenue comes from mail, the balance from passengers and air cargo. We've been standing on our own feet economically for some time.

Our present mail rate of 45c a ton-mile, which is less than we get for carrying passengers, is strictly a compensatory rate for services rendered. No part of it is subsidy. For every dollar paid United, the government gets back approximately $1.75 on the air mail stamps.

In this achievement, we feel, we have a much bigger story than that of United alone. It's the whole story of air transportation—of the airlines, the Congress, the Civil Aeronautics Board, the Civil Aeronautics Authority, the Post Office Department, the traveling public, private investors and others all cooperating to build the finest system of air transport in the world.

In the best traditions of enterprise as we know it in this country, the first 25 years of Air Transportation have seen a new industry come of age. The next 25 years should see the commercial airplane becoming even more useful, more productive, and a more important force in the daily social and economic lives of people everywhere.

W. A. Patterson

PRESIDENT

UNITED AIR LINES

Airline Commentary

By Eric Bramley

Pan American World Airways has found the perfect answer to delayed departures. At Miami recently there was a delay of an hour or so, and PAA put all of the passengers into the Clipper Club where there is a bar and comfortable chairs.

A television set had just been installed temporarily as an experiment. Time came for departure of the flight and all of the passengers were deeply engrossed in watching a program—so much so that they put up a protest about leaving. They asked PAA if they could wait until the program was over, and PAA consented.

Next day PAA sent back the television set and ordered the largest set with the biggest screen it could find. It's a permanent fixture.

•

We now have the ending to a story we told here recently.

Briefly, it involved an Italian citizen, Alberto Rosselli, who traveled Buenos Aires-Panama on Braniff, Panama-Barranquilla on Pan American, and Barranquilla-Montreal on KLM. He was refused entry to Canada on grounds that he was medically unacceptable. KLM returned him to Colombia, but PAA didn't want to accept him for Panama because he wasn't documented to re-enter Argentina. We didn't know how the incident turned out until we received a letter from Warren Kraemer, assistant to the vice president of Braniff.

The passenger evidently secured the necessary documents and was returned to Argentina via PAA and Braniff, free of charge. Mr. Kraemer takes this occasion to add some interesting and pertinent remarks:

"This situation which you have reported is an interesting aspect of international air transport operation, and one which places a severe burden on the carriers. Mr. Rosselli was accepted by Braniff in Buenos Aires . . . on the basis of his having in his possession complete and valid documentation, including the necessary immigrant visa, issued by competent Canadian consular authorities. Not only does an airline aggressively solicit and sell air transportation, but also has responsibility as a common carrier to accept passengers who have complied with all the documentation requirements.

"Mr. Rosselli was . . . refused admittance by the [Canadian] immigration authorities. The immediate action of these authorities is to place the burden for transporting the passenger out of the country on the carrier bringing him in. In some cases, in certain countries, the laws even go so far as to specify that not only must the return passage be granted free, but the carrier in question must refund the outward passage from his point of origin as well. This is in spite of the fact that the passenger has received his visa and has fulfilled the requirements of the country ordering deportation.

"Such cases are further complicated . . . by the fact that the passenger may not be a citizen of the country from which he commenced the journey in question . . . The possibility always exists that he may not again be admitted into his country of origin . . . A solution, of course, can be reached when the passenger still retains citizenship in some country and can be sent to that country even though there is a serious cost problem involved.

"It is not unusual, however, in this day and age to have stateless individuals who have no home anywhere, and these matters can . . . become extremely complicated and costly to an airline attempting to perform its vital function as a common carrier."

This practice of requiring an airline to stand all the expenses of a properly-documented passenger is grossly unjust and needs immediate attention.

It's 7:10 AM in Lima and Folger Athearn, genial Manager of Braniff Airways in Peru, is on hand to welcome you to Limatambo airport.

IN LIMA

this makes the difference....

"It's like meeting a friend from your old home town."

That's how travelers describe the warm hospitality that Braniff has brought to South American travel. Braniff goes that extra mile to make every passenger feel like a V.I.P. This entails meeting you at the airport, helping you through customs, having guides and tour service and surface transportation available, seeing to it that travel and hotel reservations are in order . . . and just generally being friendly and helpful all the way.

And because Braniff goes that extra mile, you come home with glowing memories of a smooth, successful trip.

Fly Braniff, the "Straight-Line" Route to South America.

Bon Voyage says Folger Athearn, while the native boy, resplendent in his Braniff uniform, looks after your luggage and your wraps. Long after the details of the trip are forgotten you will treasure memories of your Braniff trip as a warm friendly experience.

it's

BRANIFF

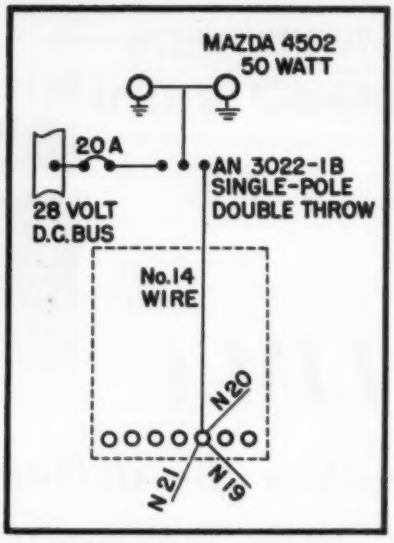
INTERNATIONAL AIRWAYS • LOVE FIELD • DALLAS, TEXAS

Ice Lights Used For Identification

A SIMPLE solution to the problem of providing better aircraft identification, particularly in high-density terminal areas, has been developed by El Cheyno of All American Airways, and has been installed in all of the company's DC-3 aircraft. A new lighting system, supplementing existing running lights and filling a need on which much research has been expended, is provided by simple changes in existing circuits, with no basic equipment being added.

Cheyno, director of maintenance at AAA, provided a simple means of connecting existing ice lights into the running-light circuits. This is done by the provision of a single-pole, double-throw switch, by which the pilot can cause the ice lights, mounted in the fuselage and shining along the leading edge of each wing, to flash on and off with the top fuselage light.

Service tests which led to acceptance of the new circuitry showed the new identification to be very popular with pilots and control tower people. Towers reported that in marginal conditions, where increased identification was critical, the AAA planes could be spotted some 15 miles away. The lights are intensified by reflection off the shiny wing surfaces.



IDENTIFICATION lights diagram.

The current ice lights use a 50-watt, sealed-beam lamp, which AAA would like to change over to a 100-watt unit. Principal limitation at present is that the Bendix flasher mechanism used in this circuit is not of sufficient capacity. Bendix has been contacted about the possibility of increasing the rating of these flasher units to accomodate the additional load.

The new circuit (see drawing) makes it possible for the pilots to operate the ice lights independently, to operate the flasher lights independently, or to use the ice lights flashing with the running lights. This feature has proved very popular with the pilots.

In addition to the consideration being given higher-capacity ice lights, Cheyno is checking into the possibility of using amber lenses on the ice lights, providing it does not interfere with their use in ice detection. He is interested in other airlines service-testing this arrangement in their search for better identification of their aircraft, particularly identification provided without additional aircraft equipment.

EAL-Southern Stops Investigated by Board

Investigation to determine whether Eastern Air Lines' service at Spartansburg, S. C., Albany, Ga., and Dothan, Ala., should be suspended in favor of local operations by Southern Airways has been started by CAB. Move was taken in view of Southern's request for five-year renewal and a new route between Columbus, Ga., and Mobile, Ala.

Airline People

ADMINISTRATIVE

Sergio I. Clark named president of Compania Cubana de Aviacion. He succeeds the late **Antonio T. Govin. Dr. Jorge Barroso** has been addeed to Cubana's board of directors.

Albert G. Redpath, general partner of Auchincloss, Parker and Redpath, investment firm, named a director of Northwest Airlines.

Todd G. Cole advanced by Delta Air Lines from post of chief accountant to comptroller filling the vacancy created by the death of **L. B. Judd.** Succeeding Cole as chief accountant is **Hugh H. Saxon.**

F. T. Wood named administrative assistant to the president of Trans-Canada Air Lines. He was formerly director of facilities and supply control.

Carl A. Nelson, Northwest Airlines general auditor, transferred to Tokyo as comptroller of the line's Orient region. **Fred O. King** has replaced Nelson as general auditor.

C. C. Hubbard, assistant executive secretary of the Air Traffic Conference of America, has assumed additional duties as assistant vice president—traffic of the Air Transport Association, parent organization.

United Air Lines has named **W. P. Feiten** to head the newly created economic controls division at San Francisco . . . **John S. Beard** has become director of personnel for Pacific's Northern Airlines . . . **Ford Eastman,** newsman, has joined Northwest Airlines' publicity dept. and news bureau . . . **Willis P. Donkin** appointed advetising manager for Pan-American-Grace Airways . . . Four organization changes in TWA's public relations dept. finds **Ed Boughton** promoted to director of press relations; **Tom Bell,** Washington assistant to the vice president; **Walter Menke,** administrative assistant to the vice president; and **George Haithcock,** acting public relations manager in Washington.

TRAFFIC & SALES

O. A. Byrne, traffic manager of Frontier Air Lines, has resigned.

Clive Adams, North American representative of British European Airways, promoted to general sales manager. **G. W. Boughton,** BEA sales manager in Italy, succeeds Adams as North American representative.

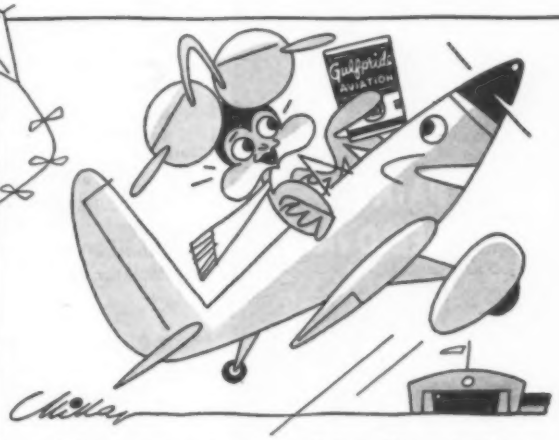
J. R. Williams named director of stations by All-American Airways succeeding **R. C. Meserve,** resigned. **I. B. Sperry** became AAA's assistant director of stations . . . **W. J. Bell, Jr.,** is now manager of Northwest Airlines' interline sales department, replacing **R. H. Kern,** on leave of absence . . . **George J. Young,** New Orleans sales representative for Mid-Continent, promoted to c.s.m., succeeding **Edward Ellis,** resigned . . . **Alfred L. Johnson** appointed by Colonial Airlines as upstate New York d.s.m. with headquarters in Syracuse . . . **Charles Farwell** has been named manager of United Air Lines recently opened offline office in Tokyo.

It could be you!

You *could* spend a lot of time on the ground trying to get started, instead of having fun in the air flying . . .

You *could* be sweating over a balky engine . . .

You *could* just junk the whole thing and fly a kite instead . . .



But you can—do more flying than starting, more soaring than sweating—with a lot less trouble, if you use . . .

Gulf Aviation Products

First, see to it that you have a tankful of that wonderful, superpowerful GULF AVIATION GASOLINE! And, for a sweet-purring, trouble-free engine, be sure you have one of Gulf's great Aviation Oils. For horizontally opposed engines, Gulfpride Aviation Oil—Series D is the world's finest detergent dispersant oil. It increases overhaul periods up to 100%.

For radial engines, or in any engine when a detergent oil is not desired, use Gulf Aircraft Engine Oil—Series R. It's a non-detergent, straight mineral oil, highly effective in retarding carbon and sludge formation. And it maintains body at high operating temperatures.

GULF
AVIATION PRODUCTS

It's great to go flying with GULF

Airport News Digest

The Noise Problem: The Civil Aeronautics Administration is establishing a special committee to study the problem of suppressing airplane noises at the nation's airports. The new agency is asking the Air Transport Association, Aircraft Industries Association, Airline Pilots Association, American Municipal Association, Airport Operators Council, Air Force, and Navy to assign representatives for membership on the committee. Charles F. Horne, CAA administrator, will serve as chairman.

Meanwhile, at New York International Airport at Idlewild, a special Committee on Low Flying, appointed to make recommendations for reducing noise, has convinced the Port of New York Authority that runway No. 7-25 should be repaired and put into use. Cost of the work will be $100,000. Use of the repaired runway will route aircraft over the least populated areas, thus reducing annoyance caused by the aircrafts' engines. Other recommended steps put forward by the committee include use of baffles or aircraft engines, and utilization of an isolated part of the airport for engine run-ups.

Wichita's Windfall: **A Federal court has awarded $11,064,515 to the city of Wichita, Kans. for the former Municipal Airport taken over by the Air Force. Original guarantee made to that city by the Air Force as a minimum for the construction of a new airport was about $9,000,000. Approximately $4,000,000 has already been paid into the court, permitting the city to accept bids for work on the first phase of construction of the new airport. Apparent low bidders for this work were almost $1,000,000 lower than the $2,703,396 estimated. If the city receives another down payment, it will proceed immediately with bids for the second phase of construction.**

Tucson's Authority: Tucson (Ariz.) Airport Authority converted an annual operating loss into a profit of $366,567 in one year. The authority, created by the city council in 1948, is making more than $33,000 per month. Profit is being put back into the Tucson Municipal Airport as payment for its large expansion program.

TERMINAL BUILDINGS, AREAS

- **Construction has been started** on a new three-story $70,000 control tower, part of $270,000 in improvements now under way at the Newport News (Va.) Patrick Henry Airport.
- **Terminal building** at the Phoenix (Ariz.) Sky Harbor Airport, to cost $1,000,000, is scheduled for August, 1952 completion.
- **Contract for construction** of a $55,000 terminal building at the Cleveland (O.) Hopkins Airport has been awarded by American Airlines and Eastern Air Lines.

HANGARS

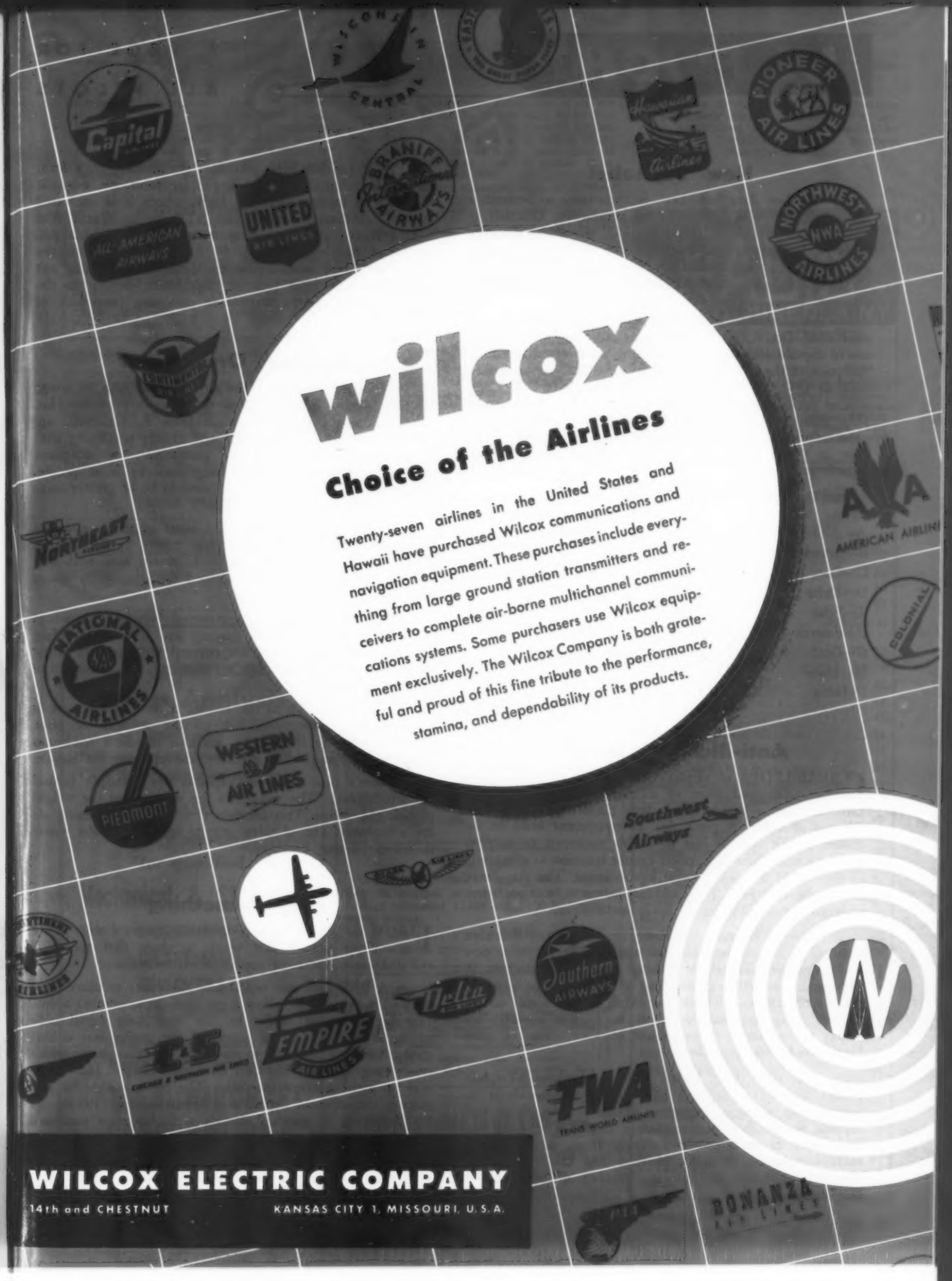
- **Lockheed Aircraft Corp.'s** new $400,000 flight test hangar at the Los Angeles (Calif.) Palmdale Airport will open this month.
- **Recommendations for construction** of a $200,000 hangar at the new Broome County (N. Y.) Airport are being prepared by James C. Buckley, airport consultant. Gulf Oil Company will pay for the hangar in return for permanent rights to supply the airport with gasoline and other petroleum products.

RUNWAYS, OTHER PAVING

- **Award** of a $2,743,130 contract for paving of the N/S runway under construction at the Newark (N. J.) Airport has been authorized by the Port of New York Authority. Electrical ducts for the runway have been purchased for an additional $55,033.
- **The present 5,500-ft. runways** at the Syracuse (N. Y.) Hancock Airport will be extended to 7,000 feet at a cost of $750,000.
- **A $28,460 contract** has been authorized for a 600-ft. extension of the N/S runway at the Columbia (Mo.) Municipal Airport.

MISCELLANEOUS

- **A $17,000,000 subway** service to the Boston (Mass.) Logan International Airport, which will carry passengers from downtown Boston under the harbor to the airport station, opened Jan. 5.
- **A $1,000,000 fire** destroyed the B. F. MacDonald Co.'s safety appliance plant in Los Angeles Airport's industrial area.



THE BULLETIN BOARD

IN FLIGHT

A PAGE FOR ALL PILOTS

New Alphabet

AT this late date "whiskey" is apparently to become a standard word in the airline vocabulary. Officially it will first see service on April 1, 1952, when the member states of the International Civil Aviation Organization adopt a new phonetic alphabet. Only one word, Victor for V, survived the present standard of "Able," "Baker," "Charlie," etc.

Full-scale use of the new phonetic alphabet will not start until Oct. 1, 1952. Until then the pilot may request use of the old alphabet, the two being used interchangeably. Adoption of the new alphabet completes ICAO action dating back to 1949, when it was first suggested in the 3rd Session of the Communications Division of ICAO. The current U. S. standard contains too many words which have strange pronunciations in foreign tongues. Another notable difference in the new alphabet is that only one word of one syllable is used.

Here's the new standard:

A—Alfa	J—Juliett	S—Sierra
B—Bravo	K—Kilo	T—Tango
C—Coca	L—Lima	U—Union
D—Delta	M—Metro	V—Victor
E—Echo	N—Nectar	W—Whiskey
F—Foxtrot	O—Oscar	X—Extra
G—Golf	P—Papa	Y—Yankee
H—Hotel	Q—Quebec	Z—Zulu
I—India	R—Romeo	

Anti-Blackout Drug?

CAPABILITIES of airplanes to fly high and fast have far outstripped those of men. At the great altitudes and tremendous speeds of modern planes, crews are like fish out of water. A great deal of equipment must be included in the aircraft just to enable crewmen to survive, and even with these aids, pilots cannot function as effectively as they could in their natural environment. The Air Force has found that even after acclimatization to altitude, men undergo certain changes in brain metabolism.

Dr. H. Albaum, professor of biology at Brooklyn College, N. Y., is working for the Air Force on a new basic drug, without which nothing can live or function, in a program aimed at discovering a technique to accustom flyers artificially to high altitude while they are still on the ground. Albaum is working with the drug in a search for a way to immunize pilots against blackout, cause of some high-altitude flying accidents.

The new drug, called ATP (Adenosine-5-Triphosphate), appears to animate all living organisms. It is involved with all active responses of the human, from conception to the last gesture before death. The drug has been used to treat people suffering from varicose veins, multiple sclerosis, arthritis, bursitis, and the itch. It has also been effective in restoring waning memory in old people.

ATP has not been produced synthetically in a form suitable for clinical use, but a simpler substance, adenylic acid, can be injected into the body, where it is converted into ATP. Albaum worked with ATP during World War II as a means of immunizing troops against cyanide gas. He found that cyanide kills by keeping ATP from the brain. He is now working on the theory that blacking out at high altitude from lack of blood-borne oxygen in the brain is closely related to cyanide poisoning from lack of ATP.

Another Ornithopter

ANOTHER ornithopter, the airplane that flaps its wings like a bird, has turned up—this time in Medicine Hat, Alberta, Canada. The inventor, James E. Caldwell, apparently familiar with the short and usually non-flying lives of former ornithopters, says he knows his new bird-plane will be greeted with general skepticism by most people. But he adds, "This science may prove to be of greater commercial value than atomic energy."

Encouraging fact about the latest of man's attempts to rig a machine that takes off like a bird by flapping its wings is that this one has flown. In recent tests with one man aboard, the ornithopter cleared the ground by about five feet.

The craft is an engine-powered bicycle with wings located fore and aft which flap up and down in birdlike rhythm. The wing frames are covered with aircraft fabric in strips spaced at intervals to simulate the spread of a bird's wing feathers.

The wings flap as the bicycle moves. The engine is rated at two horsepower, but on the strength of tests, Caldwell plans to rebuild the machine to use a ten-horsepower engine, or possibly a motorcycle replacing the bicycle.

Here's how Caldwell explains the principle behind his ornithopter: "The wing lifts the weight and the weight propels the wings. This formula is the science of using air for a highway, and of using gravity for most of the power to travel on that highway."

Say Something

FROM the Flight Safety Foundation comes a story about a cockpit gesture that seems to show that speech is still the least confusing means of communication.

A PBY pilot was ordered by the tower to move from his parking place and follow a specified car to another apron. He glanced at his copilot for the thumbs-up signal indicating all was clear. As it happened, the copilot was at that moment raising his hand to reach for his microphone which was swung above his shoulder on a light bungee. His thumb was up as he grasped the mike. The pilot thought he was getting the all-clear signal, and began taxiing. Result: he hit the wing of another aircraft with his own starboard wingtip, causing considerable damage.

Jerry Lederer, of the Flight Safety Foundation, suggests that perhaps procedure should require a verbal signal to accompany the thumbs-up gesture. Seems reasonable.

THE BULLETIN BOARD

Undisplayed Advertising: $1.00 per line, minimum charge $4.00. Cash with order. Estimate 30 capital letters and spaces per line; 40 small lower-case letters and spaces per line. Add two lines if Box Number is included in lieu of advertiser's name and address.

Displayed Advertising: $10.00 per inch for less than 15 inches in one issue or in any 12-month period. For more than 15 inches, $8.50 per inch; more than 30 inches, $8.00; more than 60 inches, $7.50; more than 90 inches, $7.00; more than 120 inches, $6.50. Space units up to full pages accepted in this section for classified-type advertising.

Forms close 20 days preceding publication date. Address all correspondence to Classified Advertising Department, AMERICAN AVIATION PUBLICATIONS, 1025 Vermont Ave., N. W., Washington 5, D. C.

POSITION WANTED

POSITION WANTED

Airline Captain. 12,500 hours, 400 actual instruments, Dispatchers Rating, two and four engine domestic, transocean and factory flying experience. Interested in flying position with future. References available. Box 752. AMERICAN AVIATION Magazine, 1025 Vermont Ave., N. W., Washington 5, D. C.

ATTORNEY, PILOT (Airline & lightplane), Trade Association executive experience and Engineering pre-Legal background. Wants position where legal training, flight experience and proven ability to organize and carry through an undertaking (and get along with people in the process) can all be put to work on a challenging job. Box 749, AMERICAN AVIATION Magazine, 1025 Vermont Ave., N. W., Washington 5, D. C.

HELP WANTED

WANTED—Local Service Airline has two openings: (1) Experienced Traffic Man. (2) Experienced Sales Manager. Give complete information. Write Box 751, AMERICAN AVIATION Magazine, 1025 Vermont Ave., N. W., Washington 5, D. C.

Mechanical Stress Analysts

Unusual opportunity for important analytical work on HELICOPTER transmission systems

ALSO

many openings for qualified

Mechanical & Structural

DESIGNERS
DRAFTSMEN
CHECKERS
LOFTSMEN

Send detailed resume to
Personnel Manager

KAMAN AIRCRAFT CORPORATION

Windsor Locks, Conn.

Aviation Careers With United Air Lines— Positions Now Open

CO-PILOTS—age 21-30, height 5'6" to 6'3", 20/20 vision without correction, high school graduate, U. S. citizen, CAA valid Commercial pilots certificate.

LINE MECHANICS—openings at Denver, Chicago, New York, Los Angeles, San Francisco, Seattle and other stations for men with A&E license or second class radiotelephone.

SHOP MECHANICS—San Francisco Maintenance Base. Work in plane overhaul, sheet metal, power plant, radio-electric, accessories, cabin overhaul and machine shop. No licenses required.

Mechanics start at $1.70 per hour. Periodic wage increases—shift differential.

Also openings at various stations for Radio Operators (ground) with second class radiotelephone.

Transportation furnished to job location from nearest United Air Lines point.

Contact:

UNITED AIR LINES PERSONNEL
Hangar No. 5
Stapleton Airfield
Denver, Colo.

FOR SALE

1950 PIPER PACER

Aeromatic Propeller—two-way low frequency radio. Primary group instruments in excellent condition. Priced at $3,700. Call John Billings, Walnut 3755, Fort Dodge, Iowa.

FOR SALE

Lockheed Lodestar Wing Panels, brand new, in original crates. Guaranteed free of rust or corrosion. $1,500 each, F.O.B. Harrisburg, Penna.

STINSON FIELD AIRCRAFT,
6013 Mission Road, San Antonio, Texas

For Sale—Aircraft Parts

West Coast's largest stock of Douglas, Constellation, ATS, PS1, and C46 parts; P&W, Wright engine parts and accessories. Complete stock AN hardware, fittings, electrical parts, and special customer machined parts.

Complete catalog upon request

COLLINS ENGINEERING COMPANY
9050 Washington Blvd. Culver City, Calif.

Put this space to work for *You*

Get top dollar results with the American Aviation Bulletin Board

AERONAUTICAL RADIO MFG. CO. MINEOLA, N.Y.

AIRBORNE ELECTRONICS

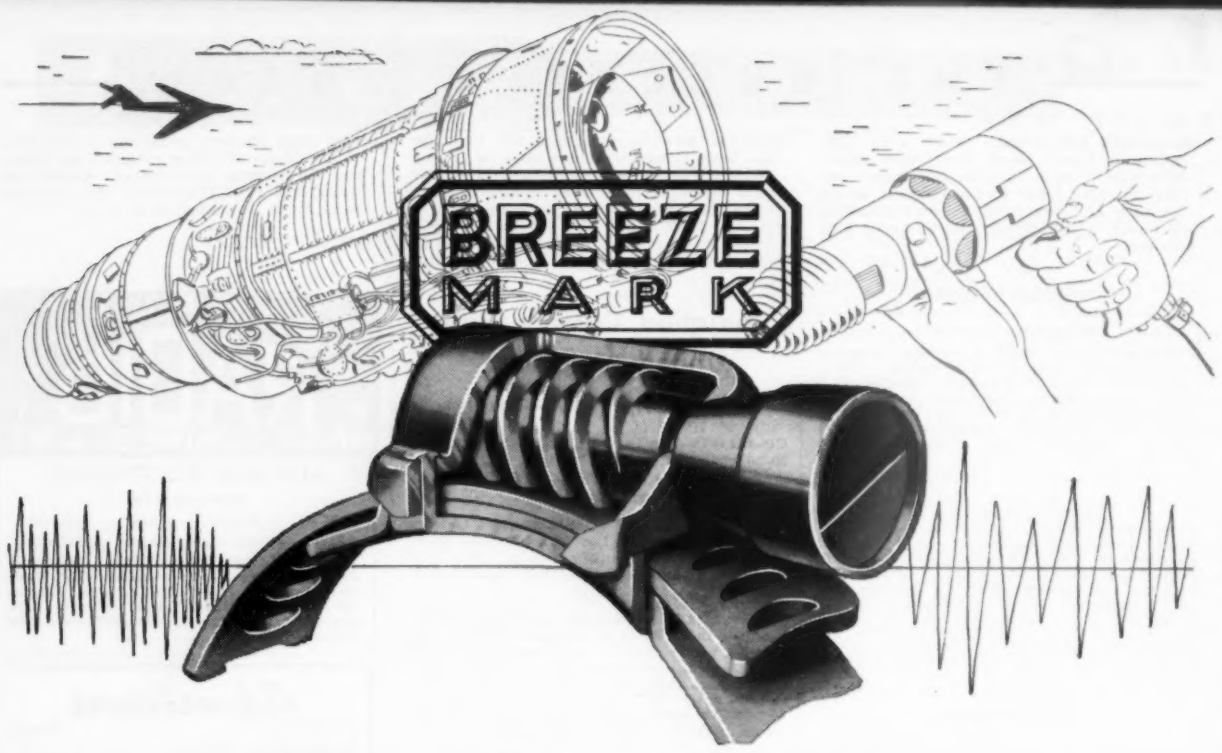
Distributors for

RCA Weston Lear Gould

Radio — Instruments — Radio — Batteries

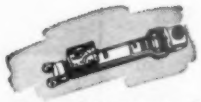
• **AERONAUT PRODUCTS: Antenna Reels, Drag Socks, Fair Leads, Wire, Tension Springs, Insulators, Noise Filters, Microphones, Headphones, Relays, VHF Parts, Aeronautical Radio Hardware and Accessories.**

Advertisers



Meet the Hose Clamp Champ that LICKED Vibration

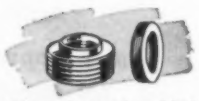
Aero-Seal's famous worm-drive principle set a new standard of hose clamp design—spread from aviation to automotive and wide industrial use. Vibration can't loosen Aero-Seal. And because clamping pressure is uniform all around there is no collapsing or distorting of hose or tube. Uses are legion in aircraft, automotive, marine and industrial products – wherever vibration is a problem and a tight connection the solution. But be sure to get the best – the *original* Breeze Aero-Seal Hose Clamp. Available in ALL STAINLESS STEEL or with STAINLESS BANDS with other components cadmium plated. Manufactured to conform to current ANA specifications.



Lightweight actuators for any requirement.

Flexible conduit and ignition assemblies.

Multiple contact connectors to meet government specifications.



Job engineered, welded-diaphragm bellows.

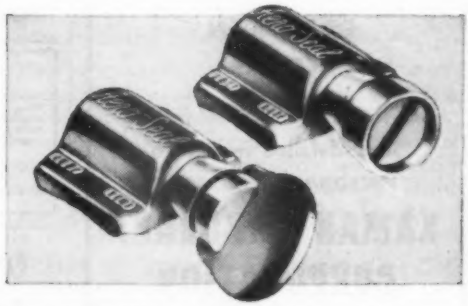
WRITE TODAY for an Aero-Seal sample, outlining your intended use. Prove for yourself that Aero-Seal *is* the hose clamp champ!

BREEZE

"Aero-Seal" **HOSE CLAMPS**

BREEZE CORPORATIONS, INC.

41 South Sixth Street Newark, New Jersey



AERO-SEAL Hose Clamps are available with screwdriver or thumb tab adjustment.

BOEDY'S ALBUM

1948

Glenn D. Carlson
Bendix Products
at Miami Springs, Fla.
January 14, 1948

Ralph T. Rabe
B. F. Goodrich Co.
Miami, Fla.
January 14, 1948

B. C. "Steve" Stephens
Pan American Airways
Miami, Fla.
January 14, 1948

R. C. "Rahly" Zinn
Pan American Airways
Miami, Fla.
January 14, 1948

H. C. "Clayt" Welch (QB)
Scantilla Division
at Miami, Fla.
January 14, 1948

Ellen Savage
National Airlines
Miami, Fla.
January 15, 1948

Beth Irene Marriott
National Airlines
Miami, Fla.
January 15, 1948

N. R. "Dick" Sawyer
National Airlines
Miami, Fla.
January 16, 1948

R. D. "Dick" Bailey
M. G. "Bill" Bailey
NAL-Miami, Fla.
January 17, 1948

R. L. "Bob" Holbrook
Jack & Heintz, Inc.
at Miami, Fla.
January 17, 1948

Tony, Jimmy and
Marguerite Pitisci
EAL, Miami Springs, Fla.
January 17, 1948

Anne (Mrs. Gene) Goble
at Columbus Hotel
Miami, Fla.
January 17, 1948

Dorothy Welch
(Mrs. H. "Clayt")
at Miami, Fla.
January 17, 1948

Helen Whatham
Dick Whatham
at Miami, Fla.
January 17, 1948

Juanita Yawn
National Airlines
Miami-New Orleans
January 19, 1948

Consuelo Gibler
National Airlines
Miami-New Orleans
January 19, 1948

Candid snapshots from the famous collection of Kenneth J. Boedecker, Wright Aeronautical Corp.

1948

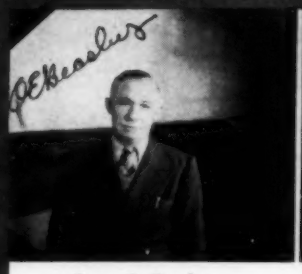
BOEDY'S ALBUM

R. B. "Red" Fowler
Moisant Airport
New Orleans, La.
January 19, 1948

W. B. "Bank" Langmore
Slick Airways, Inc.
San Antonio, Texas
January 21, 1948

A. M. "Ace" Bledsoe
Western Good Roads
San Antonio, Texas
January 22, 1948

Roy T. Williams
Trans Texas Airways
Houston, Texas
January 22, 1948



Omar E. Beasley
Trans Texas Airways
Houston, Texas
January 22, 1948

T. L. "Tony" Mc Kay
Trans Texas Airways
Houston, Texas
January 22, 1948

T. P. "Tom" Lombard
Pioneer Air Lines
Houston, Texas
January 22, 1948

Frances Banks
Pioneer Air Lines
Houston-Dallas
January 22, 1948

Harry A. Johnson (QB)
U. S. Air Force
at Dallas, Texas
January 23, 1948

R. W. "Bob" Warren
U. S. Air Force
at Dallas, Texas
January 23, 1948

Mary Ann Light
Pioneer Air Lines
Dallas, Texas
January 23, 1948

Lyndell J. Dill
Southwest Airmotive
Dallas, Texas
January 24, 1948

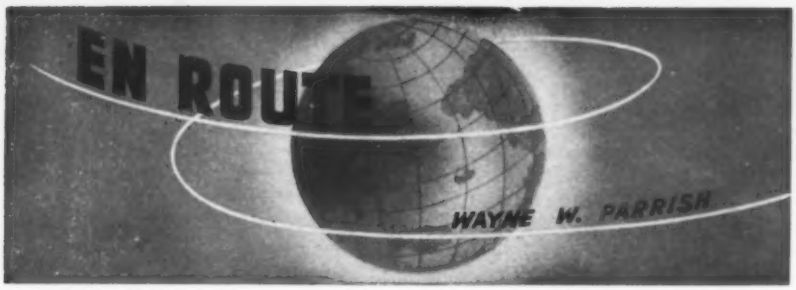
A. J. "Tony" Bovinich
L. H. Lucky, Inc.
Love Field, Dallas, Texas
January 26, 1948

Hubert H. Heinfeld
Southwest Airmotive
Love Field, Dallas, Texas
January 26, 1948

E. E. "Chap" Chapman
Southwest Airmotive
Love Field, Dallas, Texas
January 26, 1948

Paul Kennedy
Southwest Airmotive
Love Field, Dallas, Texas
January 26, 1948

Candid snapshots from the famous collection of Kenneth J. Boedecker, Wright Aeronautical Corp.



Communism: Here is more on my 10-day trip last fall to Tito's Yugoslavia. If you want to know what a Communist state is like, I heartily recommend a visit to this Balkan country. Here you will find bureaucracy in its fullest flower. Yugoslavia has more bureaucracy and fewer automobiles and bathtubs than any country I've ever been in.

Everything seems to be owned and operated by the government, but I have a rather strong hunch that the trend will begin shortly towards a modified socialism with a general increase of private enterprise. Yugoslavia reached an absolute economic dead-end with a Communist state. It stifled initiative and incentive to the point of poverty. I think it will change for the better.

Putnik: If you are a visitor your first and constant contact with state control is with a government outfit called Putnik. You are beholden to Putnik (pronounced Pootnick) for your hotel room, your currency exchange, and for all transportation. It is next to impossible to move about in the country without paying your formal respects to Putnik. It's either deal with Putnik or sleep in a park, go without food, and walk to your destination.

You walk enough anyway in Yugoslavia. I've never had so much sleep and so much exercise in years as during those ten days. Taxicabs are a rarity. I carried my baggage most of the time. There isn't anything to do at night except go to bed early. I walked miles and miles and miles. If they had bathtubs in Yugoslavia you'd really be leading the clean life. But with no bathtubs it's just a pure life.

More Putnik: But about this Putnik. It's a huge organization. It controls and operates all transportation in the country and even seems to have control of the few taxicabs available. The Yugoslavs have to buy all their own bus and rail transportation from Putnik.

But Putnik also handles all foreigners and for this purpose it has a special office in each city. To be frank about it, I found the Putnik staff people to be generally friendly and helpful. They were doing their best to serve the visitors. I remember especially a lady in the Zagreb office who argued interminably over the haphazard telephone system trying to arrange a hotel room for me. At least a little English is spoken in every Putnik office.

You just don't go to a hotel in Yugoslavia and ask for a room. All the hotels are owned and operated by the government and Putnik controls the rooms. Putnik issues you a slip of paper which you take to the hotel. Theoretically the system functions smoothly but in actual practice it can get terrifically complicated, especially if you arrive in a city late, or if hotel rooms are scarce. Lugging that baggage around the town builds up your muscles, however, and makes you healthy, wealthy and wise—and grateful for living in the U.S.A.

Still More Putnik: Putnik also has another function. As a foreigner you have to register in each city. Your passport and visa are examined and you fill out some more forms.

Then, too, Putnik is your sole source of currency exchange, or at least it is the only legal source. You are supposed to exchange your dollars and travelers' checks there, and in return you get local currency at the official rate of exchange, plus some tourist coupons.

Man and beast, that currency problem is enough to stop a Truman tax collector. You might as well read this carefully because who knows but what we won't move into some similar type of bureaucratic and socialistic heaven and you can count this as Lesson I in how to snafu a currency situation.

14 to 1: The Yugoslavian currency is called the **dinar.** Last fall when I was there the official rate of exchange was 50 **dinars** for one dollar. But the black market rate was about 700 to the dollar. So an item that cost $14.00 at the official rate cost only $1.00 at the black market rate. I've experienced quite a few depreciated currencies around the world but this 14 to 1 ratio between official and black market was pretty sharp.

Just a few weeks ago the Yugoslavian government changed the official rate to 300 **dinars** to the dollar, which is much more realistic.

But Yugoslavia has been trying to encourage visitors, so as an inducement it offered foreigners a 70% discount from the official rate of exchange. Here is how it worked. In return for a $10 travelers' check, Putnik would give you 500 **dinars** (50 to the dollar). Then it would give you 500 coupons in addition. These coupons entitled you to a 70% discount on hotel bills, restaurants, transportation and purchases at government stores. All Yugoslav money is in paper bills.

Coupons: So if you owed a hotel 500 **dinars**, you would get a discount of 70% if you paid in **dinars** and coupons, and every time a bill was paid the clerk had to make a lot of calculations, and all in all it was as bad as trying to work out deductions on your income tax.

And all the while, if you had black market **dinars**, you could be living and eating for almost nothing.

Zagreb Dinner: Let me give you a prime example. At the Palace Hotel in Zagreb my friend Asa Marberger of Yugoslavian Airlines and I had a very nice dinner. The Palace is the best eating spot in the whole country. It is also very expensive, depending on your currency. It caters chiefly to the few foreigners who come to Zagreb.

We had a small dinner. We started with one slivovitz (plum brandy) and had a main course of chicken broiled in soup, and a dessert. That's all. But the bill for the two dinners was 910 **dinars.** At the official rate of exchange this was $18.20. But I had these Putnik tourist coupons so the dinner actually came to $5.46. But if I had used black market **dinars** the meal would have come to only $1.35 for the two of us. I submit that a price range from $1.35 black market to $18.20 official is something out of this world.

Week's Salary: But here is the payoff: The average monthly salary for a white-collar specialized worker in Yugoslavia is between 3500 and 4000 **dinars.** So Marberger and I had a small dinner which amounted to one-fourth of a month's salary for a good, skilled, white-collar worker. The Palace is farther out of reach of the better-salaried Yugoslav than the highest-priced restaurant in New York is for a nonskilled worker in the U.S. And yet, on the black market, you could eat very well indeed at the Palace for a dollar or two.

Every time I paid a bill I calculated the cost in terms of (1) official rate, (2) official rate with tourist discount, and (3) black market.

$800 Radio: I priced a lot of items in the stores. A pair of nylons cost $50.00 at the official rate. A man's shirt, poor quality, was priced at $40.00. A woman's knitted sweater was $80.00. A radio cost $800.00. Coffee was $25.00 per pound. These prices were listed in the shopwindows. But few people ever paid the stated prices. They couldn't possibly afford the stuff. In this Communist state workers get various kinds of discounts for merit or for good work, so most of the goods are actually sold at less than the prices I've mentioned. But it was terribly complicated. If you weren't a good citizen you simply couldn't go shopping.

There was actually very little to buy. There were queues every day at meat and food stores. Household appliances were rare. I browsed around in one department store and was appalled at the lack of things to buy and at the very poor quality of stuff on sale. Most people haven't had new clothes for four or five years. Yugoslavia has been a country on starvation rations. Nobody actually starves, food is reasonably plentiful, but beyond the bare essentials there has been very little else to go around.

FAMOUS NAMES and FAMOUS PLANES

provide a record of *safety, comfort* and *performance . . . unparalleled in aviation history*

AEROTEC

P904 Differential Pressure Safety Switch for cabin heaters. Stall indicators or landing gear and flap warning devices.

AEROTHERM

Deluxe Reclining Passenger Seats are designed for comfort and safety on day and night flights. Proved ruggedly durable, easy to service.

Contact the Project Engineers of our Aircraft Division for the latest data on Aerotec Controls and Aerotherm Seats.

FIELD PROJECT ENGINEERS—AIRCRAFT DIVISION

CLEVELAND 29, OHIO
Jay Engineering Co., 5413 Pearl Rd.

ROSLYN HEIGHTS, L. I., N. Y.
John S. Hammond, Jr., 25 Edwards St.

NORWALK, CONN.
John S. Hammond, Jr., 394 West Ave.

SEATTLE 2, WASH.
Stanley R. Brett
John E. Freeman & Assoc., 1616-F 43rd N.

DAYTON 3, OHIO
Jay Engr. Co., 1517 East 3rd St.

LOS ANGELES 43, CAL.
Forsnas Engr. Co., 4545 West 62nd St.

WICHITA E, KANSAS
J. E. Freeman & Assoc., 4913 East Lewis St.

MONTREAL 25, QUEBEC
T. C. Chown Ltd., 1440 St. Catherine St., W.
Canadian Affiliates

REG. TRADE MARK

THERMIX

THE THERMIX CORPORATION

GREENWICH, CONN.

PROJECT ENGINEERS

AEROTEC AEROTHERM HEACON pd

MILITARY

Gen. Joseph T. McNarney, veteran of 36 years of military service, has applied for retirement from the USAF. McNarney, onetime commanding general of the Air Materiel Command, has headed the Defense Department's Management Committee to eliminate wastefulness since 1949.

Air Force is creating a unit similar to the Navy "Seabees" by teaching 500 Army Engineers-trained troops to operate some 2,500 machine tools still in storage at Marietta, Ga. The men will be known as Scarwafs (Special Category Army With the Air Force).

•

CIVIL

Joint CAA-USAF Air Defense Planning Board to bring about close cooperation between the military and civil segments of the nation's air defense program has been set up.

Defense Air Transportation Administrator Paul Butler has created a task group to study the role of air freight forwarders in a national emergency. John C. Emery of Emery Air Freight Corp. heads the committee.

Amendment to Civil Air Regulations permits the CAA to issue new certificates to holders of parachute technician certificates and special ratings without further proof of qualifications when the old ones expire.

New technical director of the Air Navigation and Development Board is Delos Kellogg Martin, formerly with Bell Telephone Laboratories. He replaces Dr. Douglas Ewing, who rejoined RCA six months ago.

•

AIRLINES

Pan American World Airways has started a weekly round trip all-cargo service between New York and San Juan to tie in with a similar service started just after New Year's between New York and Europe. Planes are Douglas DC-6A's leased from Slick Airways, with PAA supplying the crews and Slick the maintenance.

Transocean Air Lines has dropped its irregular domestic passenger flights with Martin 2-0-2's. Lower fares charged by other non-skeds and expansion of scheduled coach services are given as the main reasons. The three 2-0-2's formerly used in this service have been contracted to Northwest Airlines with TAL crews for use by Japan Air Lines.

Pan American has ordered 20 additional Douglas DC-6B's, all to be fitted with 82 passenger interiors for trans-Atlantic coach operations. Nine of PAA's earlier order of 18 B's will also have 82 seats.

Slick Airways flew a total of 67,900,000 ton-miles in 1951, a 48.8% gain over the 45,613,000 ton-miles flown in 1950.

Hal N. Carr, executive vice president of Wisconsin Central Airlines has resigned effective March 15 and will join a management consulting firm. He was with TWA before joining Wisconsin Central in 1947.

New England Air Express has won a 30 day stay in U. S. Appeals Court on CAB's suspension of its non-sked letter of registration. New England hopes to prove in that time it has the financial and managerial ability to comply with the board's regulations.

Colonial Airlines has filed suit against Sigmund Janas, Sr. and Jr., and two others asking a $500,000 judgment and cancellation of a stock option agreement which gave Janas, Sr., former head of the line, the right to purchase 80,000 shares at $12.25 a share.

•

CIVIL AERONAUTICS BOARD

Hearings in the North Atlantic Renewal Case continued last week as both TWA and PAA presented their cases. Pan-Am contends its revenues would be cut by almost $10 million if TWA's request for a return to "area competition" on trans-Atlantic is granted. PAA says it has no objection to renewal of TWA's certificate on the existing basis but feels TWA's plan to eliminate PAA from Paris and Rome is designed to throw PAA "out of half of Europe."

After CAB vice chairman Oswald Ryan blasted a non-sked's argument that six flights a week between the same points over a long period is not a regular operation, American Air Transport and Flight School agreed to accept an order limiting monthly flights between two points to 12 with forfeiture of its registration being made automatic if the limitation is violated.

CAB Examiner James S. Keith has recommended renewal of Mid-West Airlines local service certificate for three years in a follow-up to CAB's approval to absorption of the line by Purdue Research Foundation.

Coach fares of $29 between Chicago and New York which had been filed for by United Air Lines and Trans World Airlines were suspended. Ruling leaves UAL with a $35 coach fare between the two points and TWA with the $32 fare it had filed for previously. Action came after American Airlines informally protested the rates were based on the 4c a mile level used on transcontinental fares. Until now, a half-cent differential existed between long haul and short haul fares.

CAB has started an investigation to see whether Eastern Air Lines' service to Spartanburg, S. C., Albany, Ga., and Dothan, Ala., should be suspended in favor of local operations by Southern Airways. Move follows Southern's request for a five year renewal and a new segment between Columbus, Ga., and Mobile.

Northwest Airlines' Route 3 certificate has been amended to allow all-cargo flights between New York/Newark and the Twin Cities to serve Pittsburgh, Cleveland and Chicago as intermediates. Service to Portland and Seattle on the same all-cargo flights is also permitted but local traffic not previously authorized in NWA's certificate is still restricted.

Although both the City and Chamber of Commerce of Las Vegas asked for a temporary exception from present rules which keep United Air Lines and Trans World Airlines from carrying local traffic between Los Angeles and Las Vegas, CAB turned them down in view of the request for permanent amendment of the two certificates. Western Air Lines is the sole certificated line carrying local traffic between the two cities.

•

LABOR

Wage Stabilization Board opened oral hearings in the Douglas-UAW-CIO case. A WSB panel had recommended pay hikes of 24c an hour and full automatic progression in half the labor grades. Top half of labor grades would get automatic raises up to the last nickel, which would be subject to the merit review system. Panel did not recommend anything on either retroactivity of pay or a union shop. UAW asked for the oral hearings to press for the latter two points.

Washington talks began between Ryan Aeronautical Co. and the UAW. Contract expired in October but was extended to await WSB recommendations in the Douglas case. Federal mediators called the Washington parleys to avert a strike when the extension deadline expired. Basic issue is a union shop.

Northrop Aircraft received WSB permission to give wage hikes of up to 12c an hour retroactive to October 15 to 13,500 hourly workers. A penny an hour cost of living boost was also approved.

Fact finding panels in wage disputes involving Pan American World Airways-Transport Workers Union-CIO and Boeing-Wichita and AFL Machinists have been named. President Truman picked a three man emergency board in the airline case while the WSB selected a six man tripartite panel in the Boeing dispute. No board has yet been selected in another case involving the IAM-AFL and Northwest Airlines for which the President promised to create an emergency board.

An additional 3c an hour cost of living allowance goes into effect Jan. 28 for North American Aviation workers, the fifth such hike since the program started in Oct. 1950. Total adjustment in that time was 14c an hour.

Lockheed Aircraft Service and the IAM-AFL have extended their Pyote, Tex., contract beyond the March 1 expiration date. Agreement calls for an 8% wage boost and other benefits.

•

FINANCIAL

Manufacturers

Air Associates reported a net of $83,971 on sales of $11,494,501 for the fiscal year ended Sept. 30, compared with a net of $18,014 on sales of $6,113,201 for the same period last year. Backlog exceeds $24 million.

Rohr Aircraft Corp. will pay a 25c dividend January 25, the fifth such dividend since Jan. 1950.

Airlines

Capital Airlines had an 11 month net to Nov. 30 of $1,721,663, or $2.20 a share.

Chicago and Southern Air Lines expects its 1951 earnings to exceed $1 million, better than $2 a share.

Mid-Continent Airlines netted $189,956, or 45c a share for the first 11 months of 1951. Trunk routes netted $250,531 but local service operations resulted in a net loss of $60,575.

•

IN GENERAL

Delos W. Rentzel, former Undersecretary of Commerce for Transportation and before that head of the CAB and CAA, has joined W. R. Grace & Co. as vice president in charge of technical supervision of industrial operations. Although Grace owns half of Pan American-Grace Airways, Rentzel reportedly will not be involved in airline operations or policy for several years.

A meeting between airlines presidents and Secretaries Sawyer and Lovett to discuss the mobilization plan under which four engine transports would be used by the military has been postponed to late February or early March. It had been set for late January.

•

AROUND THE WORLD

French aircraft producers are trying to get USAF permission to produce replacement parts for maintenance of Republic F-84's in Europe. President of French Aircraft Industries Association, Georges Hereil, called on Secretary Finletter to sell the idea. If USAF approves, French-built parts will be used for both USAF and NATO Thunderjets.

Norwegian private airline, Braathens SAFE, has ordered two L-1049 Lockheed Super Constellations to replace the DC-4's now used on its routes to the Far East.

Merger of Italy's Linee Aeree Italiane with ALI-Flotte Riunite is not yet complete although ALI has been liquidated. Upon completion LAI will sell ALI's DC-3's to acquire more four-engine equipment.

Britain's first twin-engine twin-rotor helicopter, the Bristol 173, has made its first flight. It will probably start experimental operations for British European Airways next year. Scheduled services of the 12-14 passenger ship will probably start in 1955.

Germany's Ministry of Communications has denied reports concerning the creation of a new German airline with the aid of foreign capital.

Several French plane builders, including SNCASO, Leduc, Arsenal and Marcel Dassault, are said to have received orders to develop supersonic interceptors.

Production of SAAB J-1200 swept wing jet fighters for the Swedish Air Force will begin soon. It will probably replace the Mosquito 19's now used for night interception.

If Europe had to mobilize its commercial transports, it reportedly could assemble 771 planes. U. S. could mobilize 1,410.

Development of Britain's Bristol Brabazon will be held up another year. It may end up as an RAF troop carrier.

UP THERE WITH THE BIG NAMES...CHAPTER NUMBER 10

new safety for "luxury in the sky"

Travelers who soar at 22,000 feet in the luxury of Cia Mexicana de Aviacion Super DC-6's enjoy greater safety with Monsanto Skydrol.

Skydrol, Monsanto's fire-resistant-type hydraulic fluid, serves in the cabin superchargers of CMA's big 50-passenger ships that fly the international route between Los Angeles, Mexico City and Havana, Cuba. Skydrol, which exceeds the nonflammability requirements of Aeronautical Material Specification 3150, eliminates the danger of fires due to broken hydraulic lines. It protects passengers and crews . . . protects multimillion-dollar aircraft in the air and on the ground.

Skydrol is stable . . . a superior lubricant . . . noncorrosive . . . nontoxic. Investigate the advantages Skydrol offers you. Write for a copy of the Monsanto booklet, "*More Safety in the Air with Monsanto's Skydrol.*" MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri.

Skydrol: Reg. U. S. Pat. Off.

SKYDROL

MONSANTO
CHEMICALS AND PLASTICS

SERVING INDUSTRY . . . WHICH SERVES MANKIND

23 YEARS OF ENGINE DEPENDABILITY AND LOW MAINTENANCE COSTS

● DELTA AIR LINES inaugurated passenger service in 1929, flying single-engine, fabric-covered Travelaires from Dallas to Jackson (Miss.), Atlanta and Birmingham. These ships carried six passengers but no mail, flew at 90 m.p.h. and took an entire day to make the Texas-Georgia flight. Today, Delta's great fleet — including luxurious DC-6's that accommodate 56 passengers and fly at better than 300 m.p.h. — serves 32 cities in 12 states. Delta Air Lines' planes have always been lubricated with Texaco.

. . . for Delta Air Lines with Texaco Aircraft Engine Oil and Lubrication Engineering Service

Since 1929, when Delta Air Lines pioneered air travel across the South with single-engine Travelaires, the engines of Delta planes have been lubricated with *Texaco Aircraft Engine Oil*. Says Delta's President and General Manager, Mr. C. E. Woolman—

"Throughout these 23 years the performance of Texaco Aircraft Engine Oil *has been consistently outstanding; and the help given us by Texaco Lubrication Engineering Service has been invaluable. These have been big factors in maintaining Delta's famous dependability and low engine maintenance costs."*

America's leading airlines report similar benefits with Texaco. That's why —

For over 15 years, more revenue airline miles in the U. S. have been flown with Texaco Aircraft Engine Oil than with any other brand.

Let Texaco Aviation Products and Lubrication Engineering Service help step up the efficiency of *your* operation. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, *Aviation Division*, 135 East 42nd Street, New York 17, New York.

TEXACO Lubricants and Fuels

FOR THE AVIATION INDUSTRY

Faithfully yours

50 *for Fifty Years*

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.

American Aviation

NEWSLETTER

Entered as Second Class Matter January 28, 1952 Vol. 15 No. 35

Fiscal 1953 defense budget sets aside at least $14.1 billion for procurement of aircraft and related equipment plus $452,800,000 for procurement of guided missiles. These represent Navy and USAF requests. Army bequests for guided missiles are obscured.

Grand total shows $52.3 billion for defense, including military construction. USAF gets a total of $22.4 billion, with $1.7 billion of that allotted for liquidation of previous contract authorizations. Obligations for the USAF for fiscal 1953 show $11 billion for aircraft buying, guided missiles and industrial mobilization.

Navy is down for $13.8 billion in all, with $622 million set aside for previous contract authorizations. Navy obligations for aircraft, missiles, aircraft ordnance, modernization, etc. total $3.5 billion.

Army's budget for aircraft procurement is $36.6 million. Under its heading of "ammunition and guided missiles" is $2.9 billion while an additional $227 million is provided for Army "electronics and communications." Army's total grant is $14.2 billion.

CAA is listed for a total of $161,741,499, or $2,708,029 less than the request for fiscal 1952. Victims under this cut are the Federal-Aid Airport program and establishment of air navigation facilities.

•

One resignation and one strong protest came from two members of the Independent Military Air Transport Association following release of a "policy statement" by the non-sked association calling for investigation of "possible improper practices" of scheduled airlines, reorganization of CAB, permanent franchises for non-scheduled air carriers, and various legislative proposals.

Resignation came from Seaboard & Western Airlines, one of IMATA's 17 members, which accused the association of embarking, without consulting its members, on a large-scale public relations program "which is entirely outside its avowed aims." Without supporting or rejecting the statement in whole or in part, S&W rejected IMATA's authority to commit its members to a program without their prior approval. S&W added that it joined IMATA only for the purpose of coordinating traffic for the military.

Strong protest came from Transocean Air Lines, which said it hadn't approved the policy, and didn't sponsor or support it. It also is in IMATA only to facilitate military business.

Investigation urged by IMATA would cover "efforts of the scheduled airlines to distort and use the provisions of the Civil Aeronautics Act to freeze the industry in their own mold and to perpetuate their own monopoly." It would reorganize CAB into three sections, one dealing with "scheduled subsidized airlines," another with all-cargo lines, a third with "non-subsidized" passenger and cargo lines.

IMATA also wants to carry mail at cargo rates, wants the charter field reserved for non-skeds, and believes Congress should direct CAB to compel subsidized lines to merge among themselves or with self-sufficient lines, "including members of our industry."

•

Non-skeds claim they won't be hurt by expansion of domestic scheduled coach service and lowering of transcontinental fare to $99. O. Roy Chalk, president of Independent Military Air Transport Association, says the profit at $99 is "fabulous" and that non-skeds can operate profitably coast-to-coast at $79, although he declined to say whether any of his members planned a reduction.

•

Aircraft industry representatives got the word from the Pentagon on "downward revisions" last week and the word seems to be a cutback averaging out to 20%.

These "adjustments" mean that backlogs remain unchanged but planes originally scheduled for delivery in 1954 will not be delivered until 12-18 months later.

Some leading plane builders were not entirely unhappy with the development, may of them feeling the postponement will ease current production problems. Many sub-contractors, however, will be hard hit.

•

With the advent of the Douglas DC-7 at a cruising speed of 350 mph, many airlines may decide to forego the use of turboprops on long haul routes. At least one major carrier expects to go directly into turbojet airliner operation without an intermediate propjet stage.

•

Although neither officials of D[illegible] the Defense Air Transportation Administration will state flatly that [illegible] permit the cost of airliners delivered after Korea to be written off for tax purposes in five years, that seems to be the new policy.

With the inclusion of transport planes in DPA's priority category for the granting of rapid tax write-off certificates, almost every airliner

ordered or delivered after Korea will be eligible for amortization in five rather than the currently legal seven years.

The pattern became evident with the granting of certificates of necessity covering five Convair 240's delivered to American Airlines late in 1950, 30 Lockheed Constellations and Martin 4-0-4's for Trans World Airlines (many still to be delivered) and several other airlines. In all, DATA, which makes recommendations on certificates for airliners, now has applications covering about 200 planes and expects more to be filed soon.

DPA's new policy marks recognition of the air lift potential of the new commercial transports and the tax certificates are being approved on that basis. Thus, pre-Korea transports will probably not be eligible under the new program when a second carrier buys them because they did not add to the nation's air lift in case of emergency.

•

The "small irregular carrier" will soon become a thing of the past. Effective Feb. 20, CAB has made them "air taxi operators" who will no longer require "letters of registration." Most of the 2,000 operators affected will also be permitted to eliminate the present reporting system. From now on, only those operating planes with more than five seats will file annual reports.

Applying to operators of planes with less than 12,500 pounds maximum certificated take-off weight, the new CAB regulations permit them to engage in unlimited "jitney-type" operations as a connecting service with certificated carriers.

•

A Senate Select Committee on Small Business report, after blasting the Civil Aeronautics Board for 10½ pages for turning over the aircoach market to scheduled airlines "five years after it was pioneered by the irregular airlines," devotes three paragraphs of criticism to the irresponsible business methods of the non-skeds.

The Committee accuses CAB of executing a "violent about-face" in its recent Transcontinental Coach Case decision, which approved scheduled carrier rates comparable to those of the non-skeds.

While deploring the business practices of the non-skeds, the Sparkman Committee says the Board is basically to blame because it prevents the non-skeds from offering scheduled services, making them rely on independent ticket agents to pool those services.

The Sparkman report said it recognizes that CAB's "death edict" has caused many non-skeds to "grab every possible dollar" while ignoring their long range welfare. But it urged the non-sked industry to police itself or face "certain extinction."

•

The Air Force has started investigating the carriers to whom it leased planes to determine whether those aircraft have been sub-leased. Sub-leasing is prohibited in the contracts. Recall of two Seaboard and Western C-54's which had been sub-leased to another carrier is the first test.

•

Defense Department officials have agreed to demands by the Office of Defense Mobilization that production lines of present military planes be frozen. This will speed up output as it did in World War II, when design changes were incorporated in modification centers.

Present freeze, however, is not unbreakable. Design changes for safety reasons will still be permitted. But all such changes will have to be approved by Lt. Gen. Orval R. Cook, USAF Deputy Chief of Staff, Materiel, in the case of Air Force planes, or Rear Adm. T. S. Combs, Chief of the Bureau of Aeronautics, where Navy planes are involved.

•

MANUFACTURERS

Cessna Aircraft Co. has made an offer to acquire Seibel Helicopter Co., Wichita, on an exchange of stock basis. The Seibel helicopter has been certificated by CAA and is now undergoing military evaluation tests.

Consolidated Vultee's Convair 340 backlog has been boosted to 140 with receipt of an order for six from KLM Royal Dutch Airlines and eight from Garuda Indoesian Airways. Certification tests on the prototype are under way.

Of $53.9 million in new aircraft plants approved by DPA under the rapid tax write-off program, $36.2 million, or about 67% was in place on Dec. 31. About 40% of the $339.5 million approved for aircraft engines and parts plants was estimated complete on that date. And 43% of the $74.7 million approved for aircraft parts and equipment plants was believed to be complete as the new year began.

Convair's Fort Worth division has dropped about 500 workers from its payroll, most of them aircraft assemblers. Employment there is now about 30,000.

Grumman Aircraft's board chairman, Leroy R. Grumman, has won the Institute of the Aeronautical Sciences' 1951 Honorary American Fellowship.

Douglas Aircraft has denied reports it is planning large-scale production of transports in Japan. A Tokyo report said five major Japanese firms were

American Aviation

NEWSLETTER (ABC) **Vol. 15, No. 35**

WAYNE W. PARRISH, Editor and Publisher
ERIC BRAMLEY, Executive Editor

American Aviation is published every Monday by American Aviation Publications, Inc., Washington, D. C. Printed at the Telegraph Press, Harrisburg, Pa. Subscription rates for United States, Canada, Mexico, Central and South American countries—$5.00 for 1 year; $8.00 for 2 years; $10.00 for 3 years. All other countries—$7.00 for 1 year; $12.00 for 2 years. Entered as Second-Class matter in Washington, D. C., and Harrisburg, Pa.
Editorial and business offices: 1025 Vermont Avenue, N. W., Washington 5, D. C. Telephone—STerling 3400.

CAB last week stayed its directive to Pan American

bidding for licensing rights with Showa "understood" to have been authorized to produce DC-4's and DC-6's.

•

AIRLINES

Pre-flight customs and immigration inspection is being given a three-month test on American Airlines' passengers from Toronto, Canada, to Buffalo and New York. All inspections are made at Toronto, eliminating usual 30 to 60 minutes customs delay in U. S. and allowing passengers to be discharged at any gate. Amount of time actually saved is still moot, since passengers must check in earlier at Toronto, but a 10 to 20-minutes saving is hopefully expected. Some of the problems involved: neither U. S. customs nor immigration inspectors has power of arrest within Canada; there is technical question of collecting duty when the duty-taxed articles have not actually entered U.S. Customs still requires carrier to file all necessary papers at each entry point and maintains right to require a recheck in U. S.

Colonial Airlines filed $500,000 damage suit in U. S. District Court of New York against Sigmund Janas Sr., former president, Alfred M. Hudson, Sigmund Janas Jr., and Monroe Greenthal Inc. False expense accounts and general misuse of company funds were cited. Janas, Hudson and Sigmund Janas Jr. were charged with using company funds for personal items such as hotel charges, wines, liquors, jewelry, flowers, gifts, etc. Colonial seeks to recover $250,000 from Janas Sr., $50,000 from Janas Jr., and $35,000 from Hudson. It also asks recovery of a $10,000 fine and $5,000 legal fees paid by Colonial for Janas Sr. in a suit in Canada.

KLM Royal Dutch Airlines has become the first foreign operator to place an order (one plane) for the Douglas DC-6A Liftmaster all-cargo plane.

First part of program to modify four-engined commercial planes so they'll be immediately available for emergency military use is well underway. Four airlines are each modifying one plane to work up costs, specifications and bills of material for all airlines. Prototype work on DC-6 is being handled by United Air Lines, Constellation by TWA, Stratocruiser by Northwest and DC-4 by Pan American. Specs and other data will be made available to all airlines, which will then modify their own planes in their own shops.

Airline tariffs in terms of Canadian dollars were lowered 7% on Jan. 22 by all scheduled domestic and international carriers operating to and from Canada. Reduction is result of mutual agreement among airlines to reflect the Canadian dollar at par value with U. S. dollar for rate-making purposes. Current relationship is $1.07 Canadian to $1 U. S.

•

CIVIL

Elmer Schlesinger, of Helicopter Services of California, was elected president of Helicopter Association of America at annual convention in San Francisco. Carl Brady, of Economy Pest Control, Yakima, Wash., was named secretary, and Roy Falconer, of Rotor Aids, Ventura, Calif., was elected treasurer.

•

CIVIL AERONAUTICS BOARD

Bonanza Air Lines was granted a new route between Phoenix and Los Angeles/Long Beach last week as CAB decided the Reopened Additional California-Nevada Service Case. Applications for similar service of Western, Southwest and Frontier were denied by the Board with Western directed to suspend at Yuma and El Centro and Frontier over its Phoenix-Yuma segment. Bonanza previously operated only between Reno, Las Vegas and Phoenix. Its new Phoenix-Los Angeles segment involves intermediate service to Santa Ana/Laguna Beach, Oceanside, San Diego, El Centro, Blythe, Yuma and Ajo. In a simultaneous action, CAB opened an investigation to determine if Bonanza and Southwest should merge.

Application for approval of a merger of Colonial Airlines into National Airlines has been filed jointly by the carriers with the CAB. Preliminary agreement under which NAL would redeem CAI stock on the basis of ⅞ of a share of NAL for each full share of Colonial, was attached to the application. A definitive agreement is now being worked out and will be submitted later. Board of directors of both lines have okayed the plan, but stockholders approval is still necessary.

A new-type interchange service proposed by Braniff and Capital in which junction points would be over-flown threatened to create one of the most complicated domestic route proceedings in years last week as a prehearing conference was held by CAB. Attorneys for six opposing airlines indicated their companies would submit new route applications or renew old ones in an effort to offset competitive implications of the Braniff/Capital proposal. An immediate area extending from Boston to Albuquerque would be involved.

Northwest Airlines' appeal of CAB's May, 1950, decision in the Milwaukee-Chicago-New York Restrictions Case was upheld by the U. S. Court of Appeals for the District of Columbia Circuit last week. Board's decision, which authorized Capital Airlines to operate Cleveland and New York nonstop services, was ordered set aside by the Court with the case to be reopened for consideration of Cleveland-New York applications of Capital, Northwest and American. Relying on the famed Ashbacker Case, Court ruled that CAB's decision foreclosed favorable action on NWA's untried New York-Cleveland proposal. But CAB was authorized to continue CAP's operating authority during the course of a new proceeding.

New York Airways asked CAB for immediate issuance of the certificate awarded it conditionally in the New York Area Helicopter Service Case. Company submitted affidavits of William Barclay Harding of Smith, Barney & Co. and John L. Senior. Jr., NYA president, which it claims are "in full and complete satisfaction" of CAB's requirement that a showing of adequate financial resources be made prior to issuance of the certificate.

Tokyo report said five major Japanese firms were

CAB last week stayed its directive to Pan American World Airways and employe groups involved in the seniority dispute arising out of the PAA/American Overseas merger. Board action was taken in view of intervention of the National Mediation Board, which in a preliminary move, has directed the parties to maintain the status quo pending handling of the dispute in mediation. CAB order set aside was issued Nov. 27, 1951, and directed establishment within 60 days of integrated seniority lists for four classes of employes, including pilots.

Hearings in the North Atlantic Certificate Renewal Case ended with Paul G. Hoffman, director of The Ford Foundation and former ECA administrator, appearing as a public witness to warn that American would "lose prestige" if there is a contraction of American air services abroad, particularly between the Near East and India. Elimination of either Pan American or TWA, he said, would indicate a "lessening of interest" on our part that would not rest well with the countries involved. Meanwhile, at the close of hearings, CAB Examiner Francis W. Brown refused to accept as evidence a Pan Am exhibit which tended to show that Howard Hughes has "profited handsomely from his ownership of TWA."

•

LABOR

Railroad and Airline Wage Board will meet with representatives of airlines and airline labor unions Feb. 7 and 8 to discuss future wage stabilization policies. RAWB chairman Nelson M. Bortz wants to learn whether the 100,000 airline workers approve RAWB's adaptation of WSB and SSB regulations or want his agency to work out regulations tailored for airline needs.

Nearly 50 of American Airlines' 80 foremen at its Tulsa base are reported to have formed an Air Carrier Foremen's Association designed to raise wages from the present $5400-$5800 to $8100 a year.

A profit-sharing retirement plan for salaried employes and a pension plan and trust for salaried, clerical and plant protection workers has been set up by Texas Engineering & Manufacturing Co. and Luscombe Airplane Corp., subject to WSB and SSB approval. The companies will make all payments.

Presidential fact-finding panel started hearings in the 75 points at issue between Pan American World Airways and the Transport Workers Union-CIO. Although attorneys for both sides agreed on three issues, the talks bogged down on a $1 payment for meals missed on overtime. Indications were that the hearings would be lengthy.

Kaman Aircraft Corp. asked the National Labor Relations Board to conduct elections between the UAW and the IAM.

UAW and Ryan Aeronautical Co. voluntarily submitted their dispute over a union shop, wages and other issues to the WSB after Federal mediators were unable to break deadlocked talks.

FINANCIAL

Airlines

American Airlines will pay an 87½c dividend Mar. 1 to holders of its cumulative convertible preferred stock of record Feb. 15.

Delta Air Lines will pay a 25c dividend Mar. 1 to stockholders of record Feb. 15.

Manufacturers

Douglas Aircraft Co. has declared a 75c dividend, making a total of $3 for the fiscal year.

Piper Aircraft Corp. netted $536,075, or 58c a share, on sales of $5,835,088 for the fiscal year ended Sept. 30 last. For the previous fiscal year, Piper had a net loss of $178,414 on sales of $3,911,921.

Bell Aircraft Corp. borrowed $2.5 million at 4½% from Metropolitan Life Insurance Co. to expand its helicopter division at Dallas. Repayment is due Dec. 1, 1961.

Sperry Corp. arranged a $53 million credit with three New York banks at 3% until Dec. 31, 1954 to provide working capital for its defense orders.

•

AROUND THE WORLD

Flight tests have started on a military version of British European Airways Type 171 Bristol helicopter, the Sycamore Mark 11. It is powered by a 570-hp Alvis Leonides engine, operates at an all-up weight of 5,200 pounds and incorporates a center of gravity compensating system.

Spain's new twin-engine transport, the CASA 207, is powered by Pratt & Whitney R-2800 engines, grosses 33,000 pounds, carries a useful load of 11,000 pounds and carries 33 passengers. It is now under construction.

France is planning to eliminate subsidies to Air France for services flown in competition with other French airlines, especially to French territories in Africa and the Far East. Other services will be subsidized only where Air France flies them "by Government request in the public interest." As a result, planned local service routes in Algeria have been postponed until Algerian authorities can underwrite deficits caused by these operations.

Australian National Airways, dissatisfied with the government's plan to continue owning Trans Australia Airlines while giving $2.5 million in government business a year to ANA, has proposed a merger of the two carriers.

Portuguese government is expected to announce sale of Transportes Aereos Portugueses to a Pan American subsidiary, SIPAA. PAA reportedly has a 40% interest in SIPAA. TAP has three DC-3's and five or six DC-4's.

Far Eastern airlines who are not members of IATA are undercutting IATA rates. Thai Airways, for example, offers a Tokyo-Calcutta tour for $270 round trip as against a $717.50 rate for IATA members.

Lease agreement between Northwest Airlines and Hong Kong Airways has been extended indefinitely by the Hong Kong government.

Trans Austrlia Airlines is dickering for the purchase of six Vickers Viscounts for about $600,000 each. Delivery is expected in late 1953 or early 1954.